

FIG. 1A

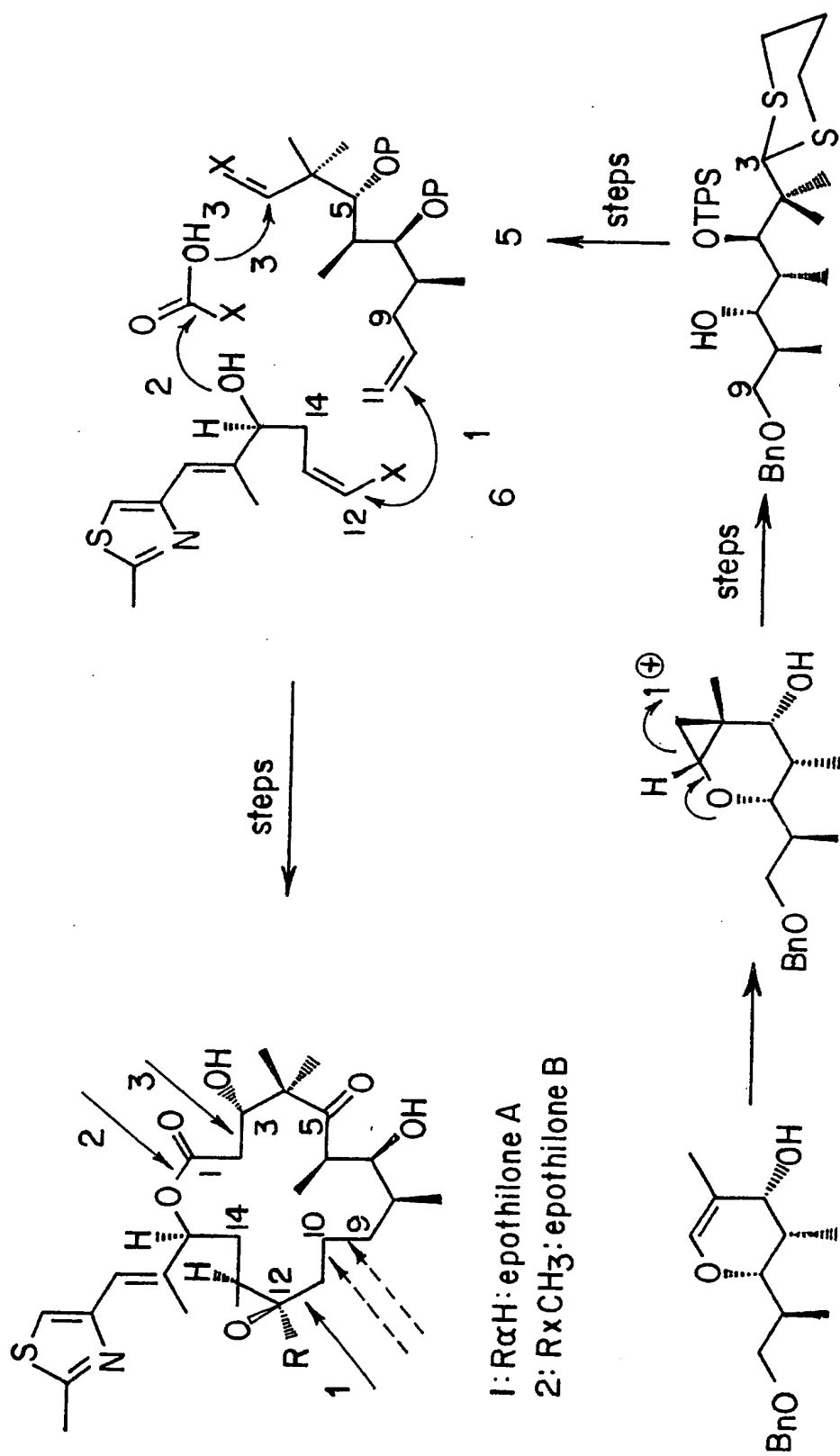


FIG. 1B

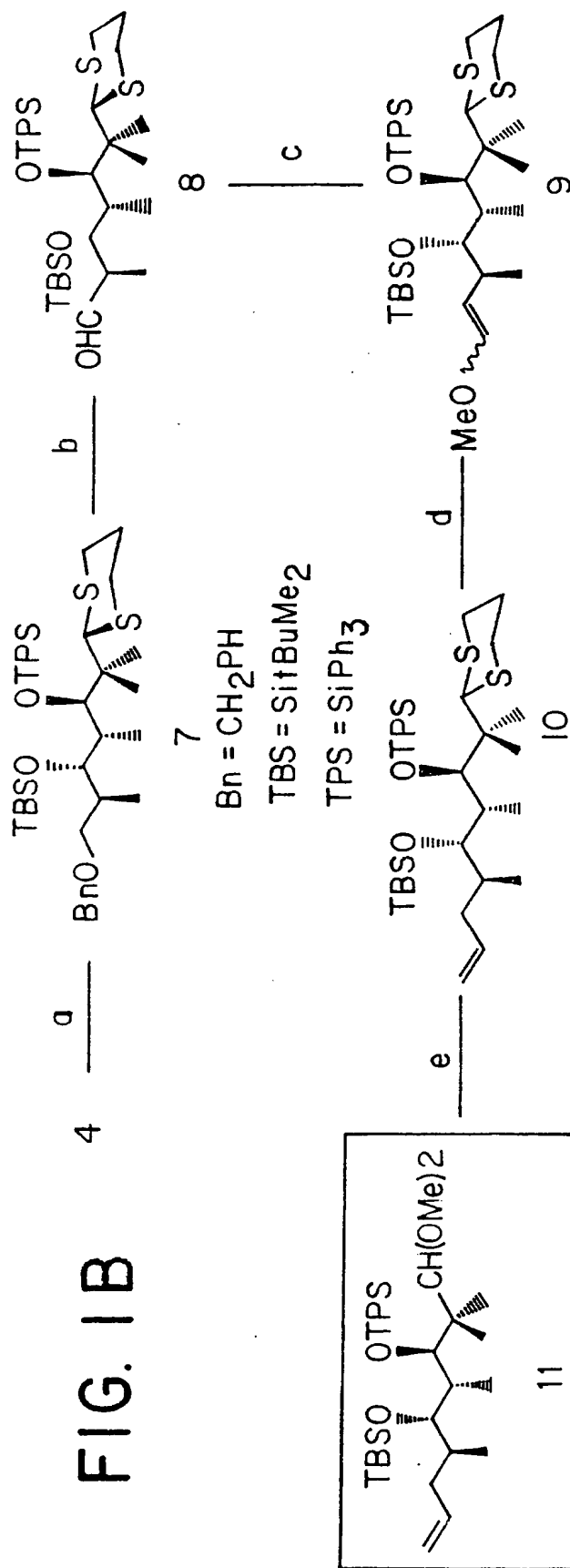


FIG. 12B

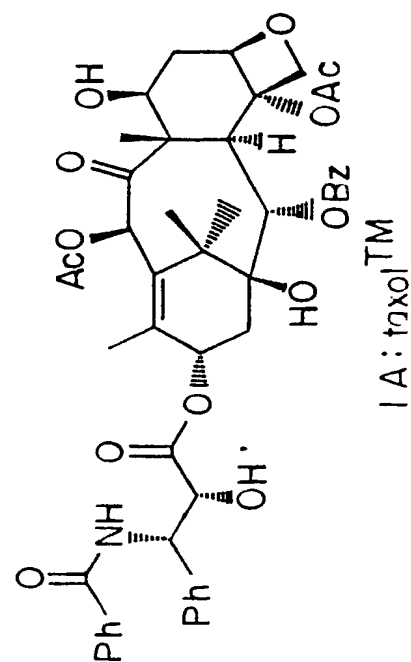


FIG. 12A

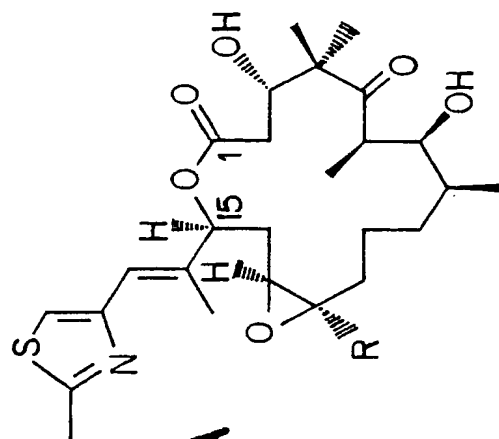
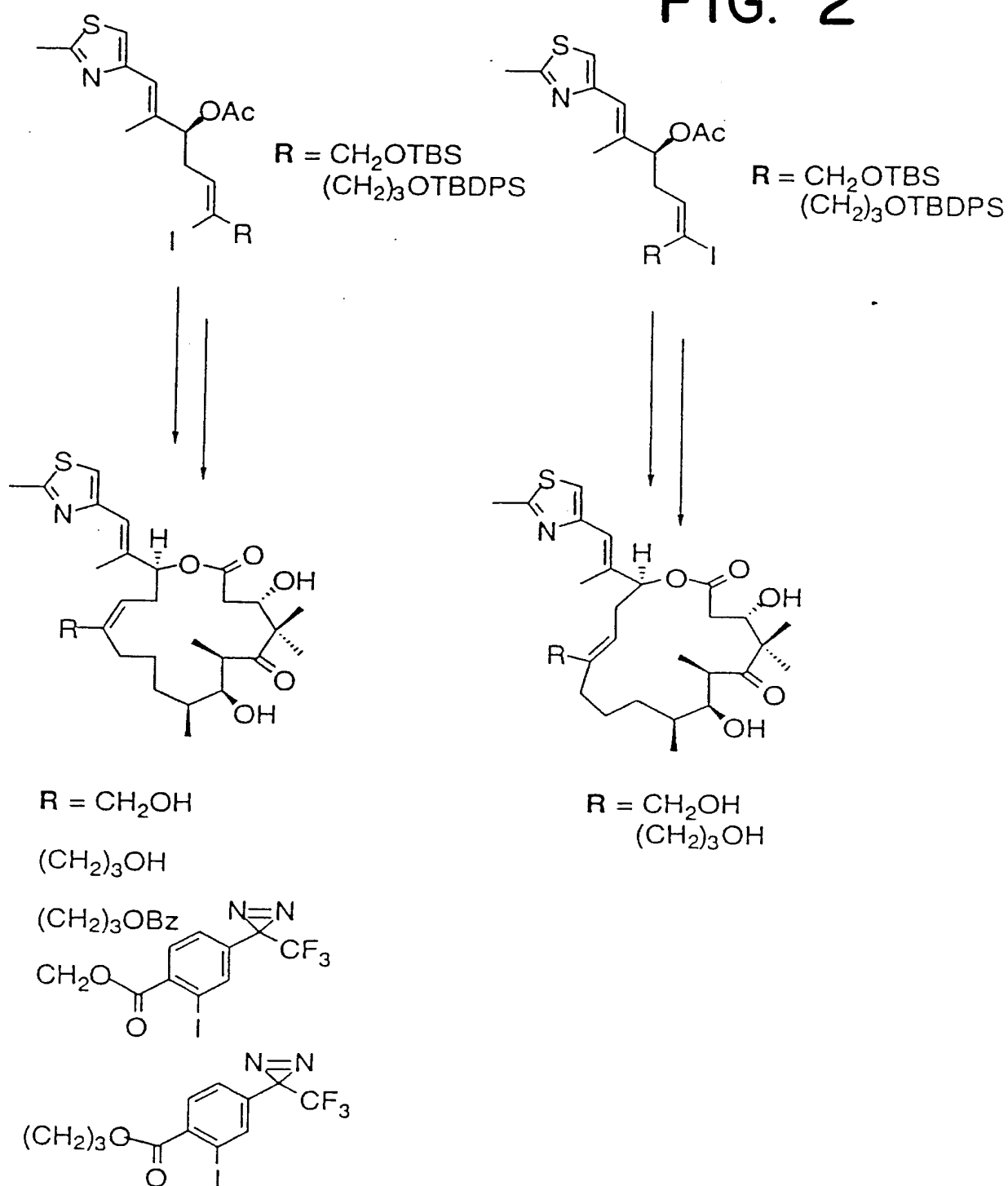


FIG. 2



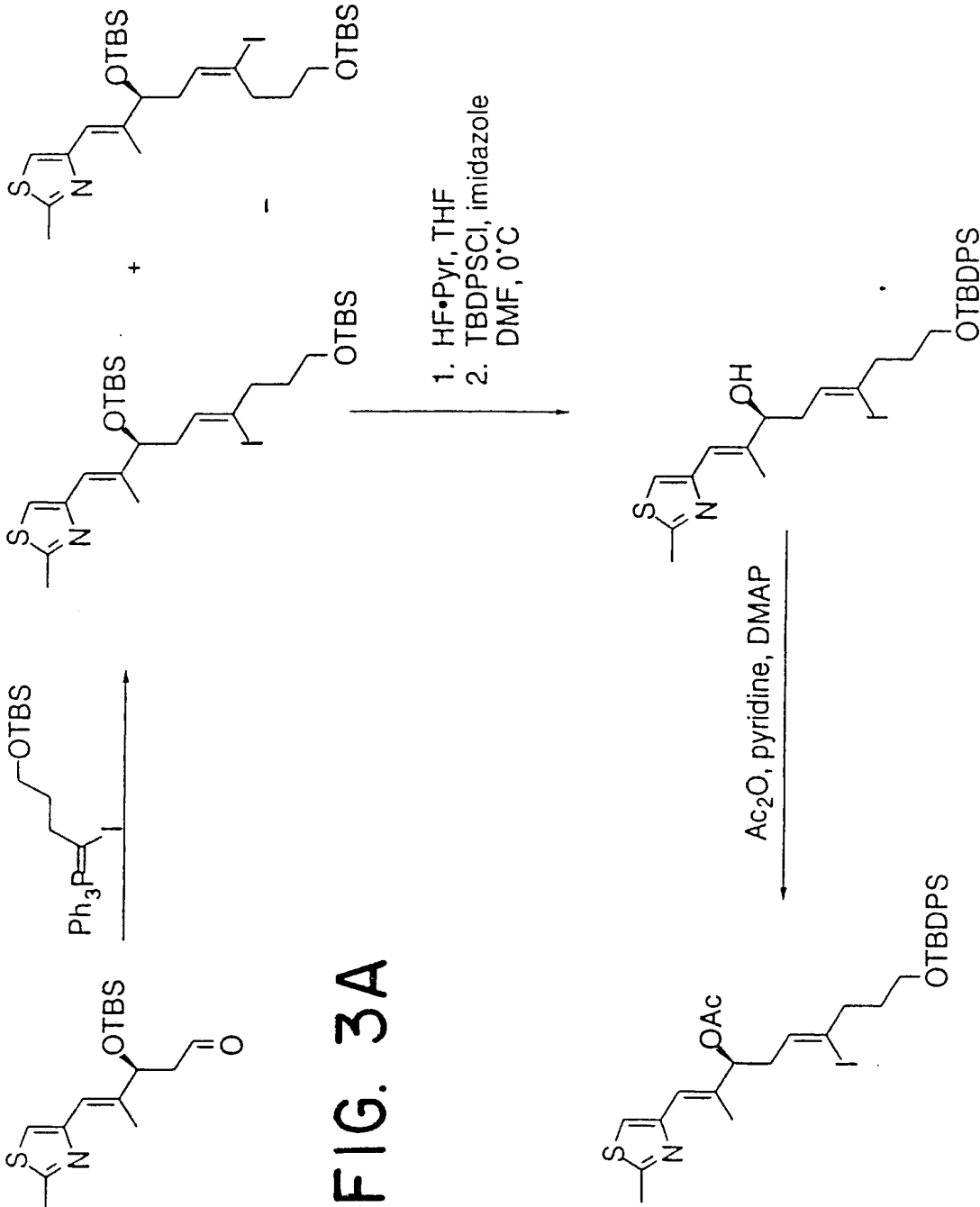


FIG. 3A

FIG. 3B

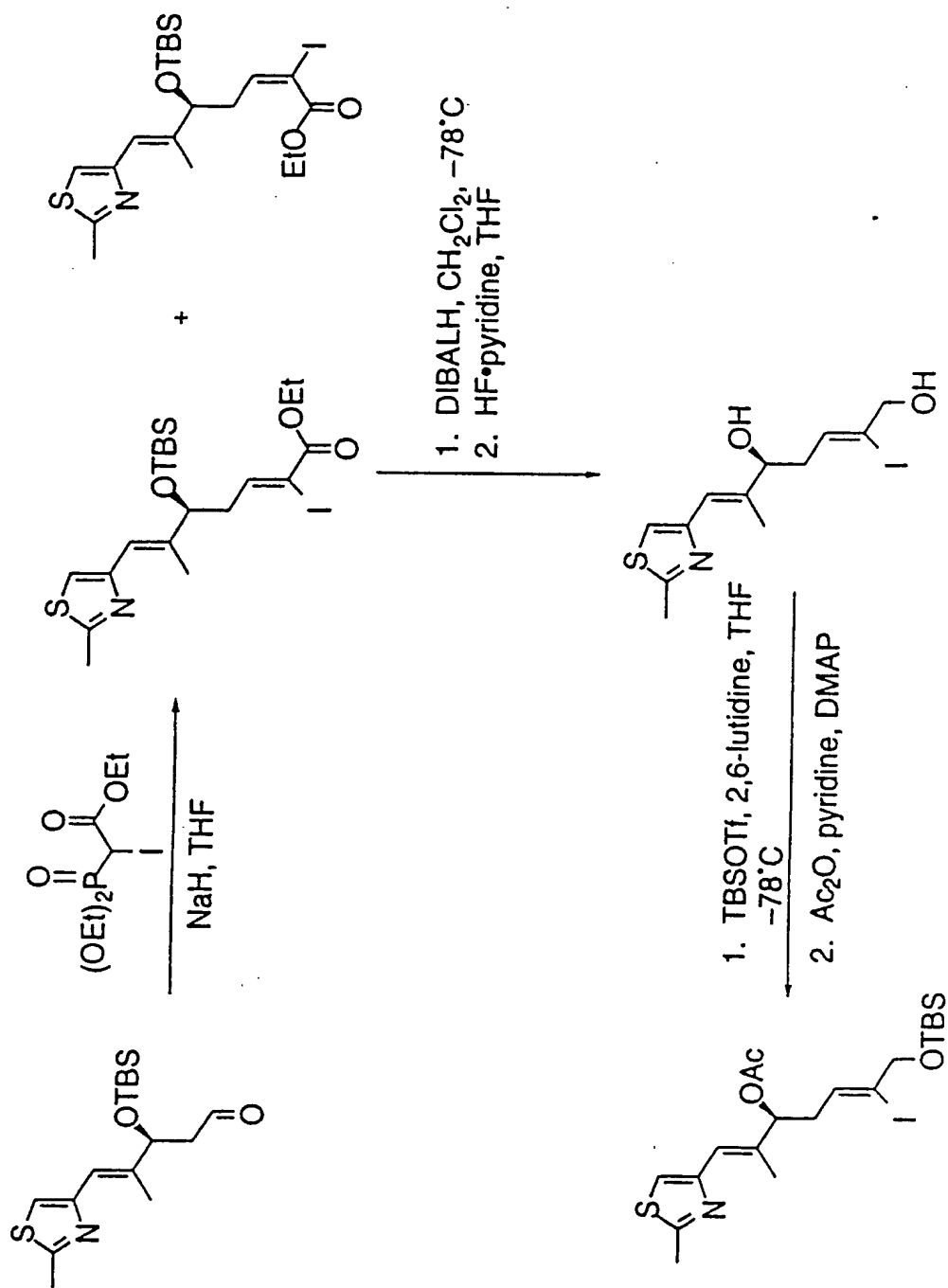
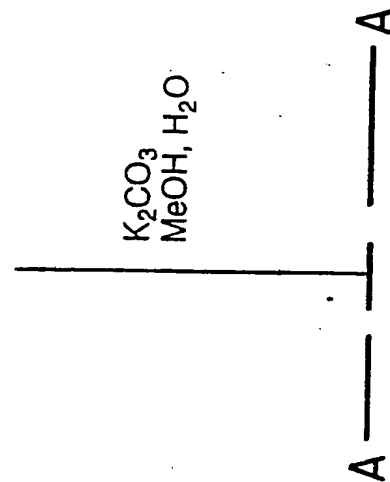
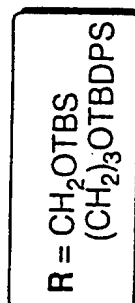
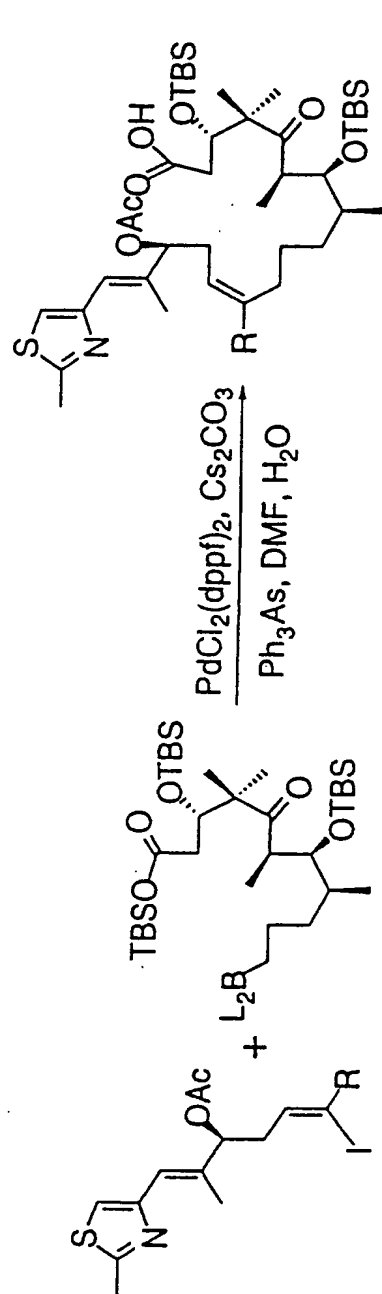


FIG. 3C



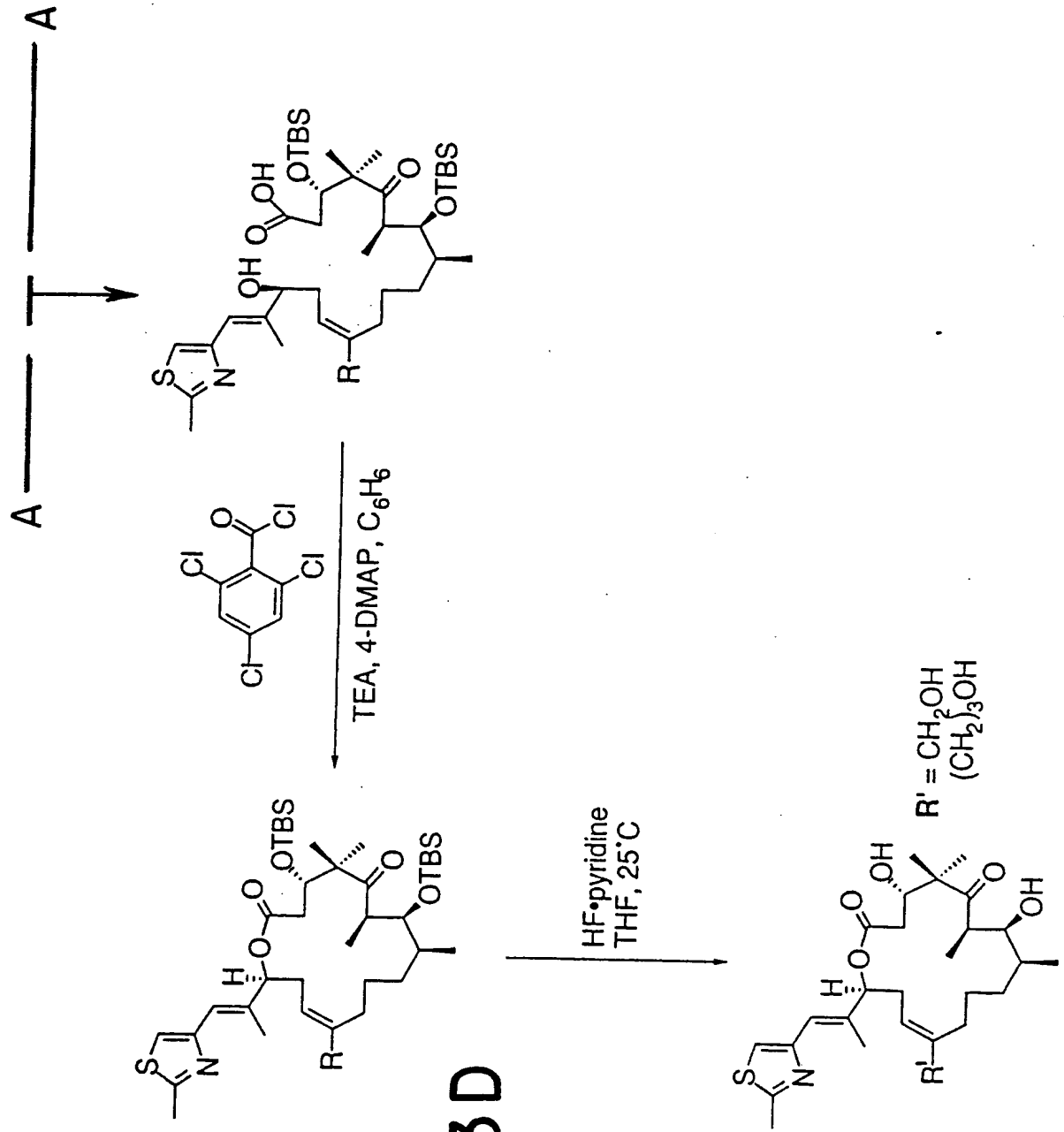


FIG. 3D

FIG. 3E

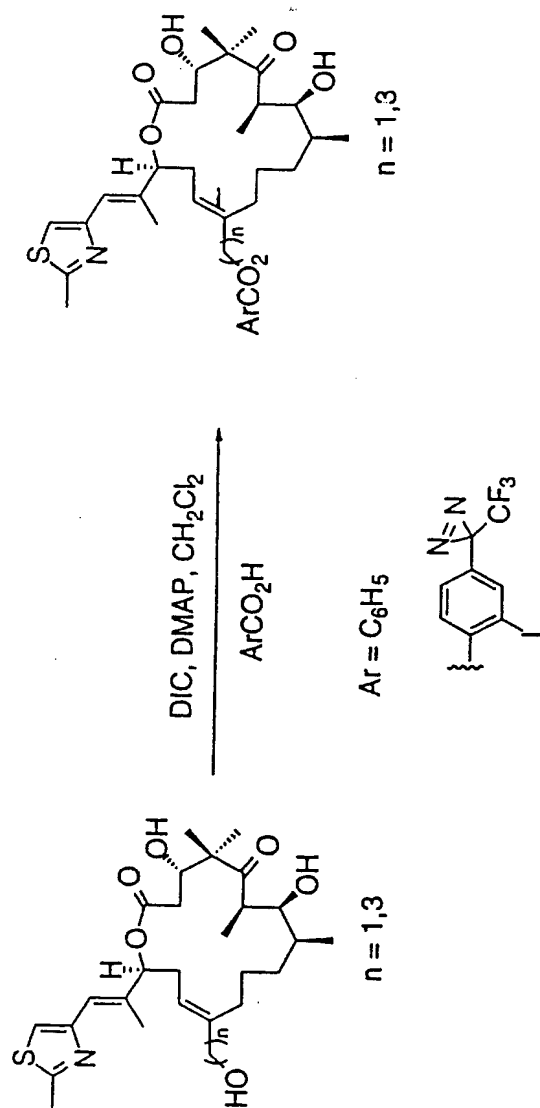


FIG. 3F

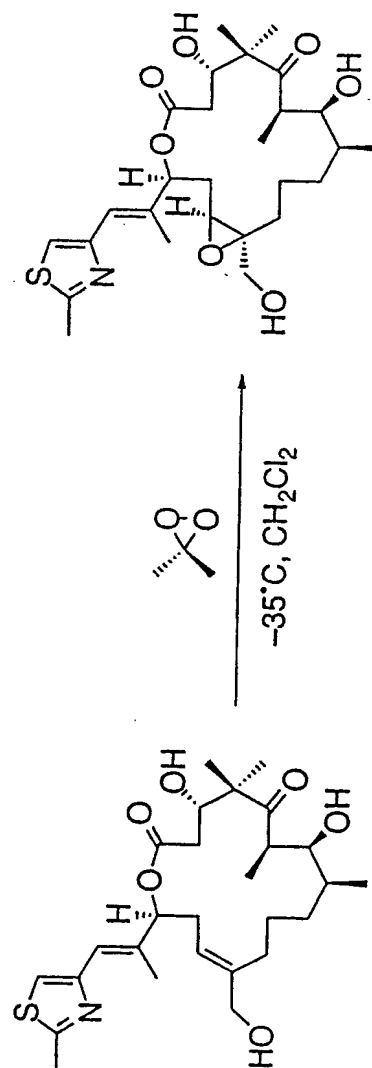




FIG. 4A

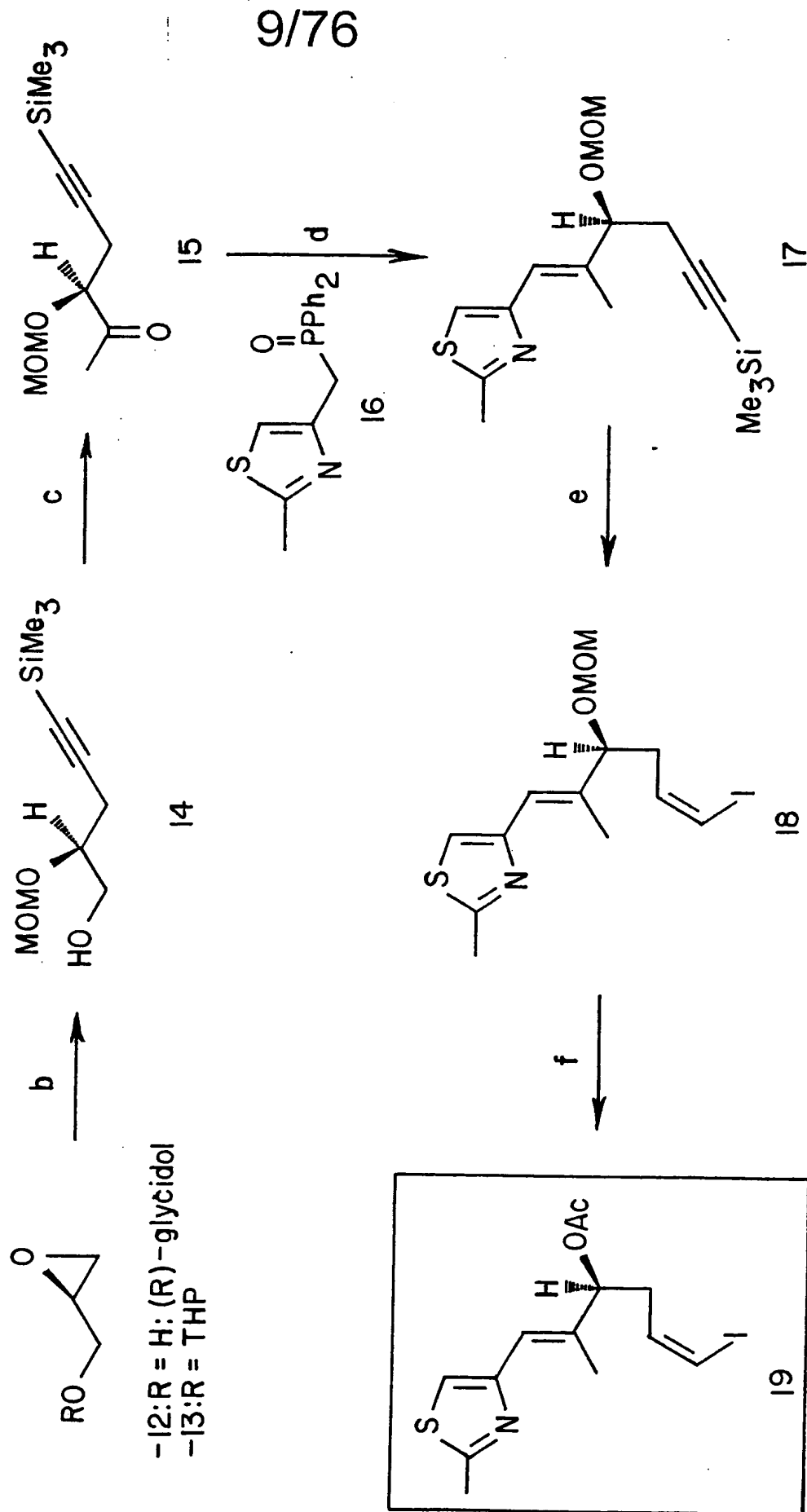
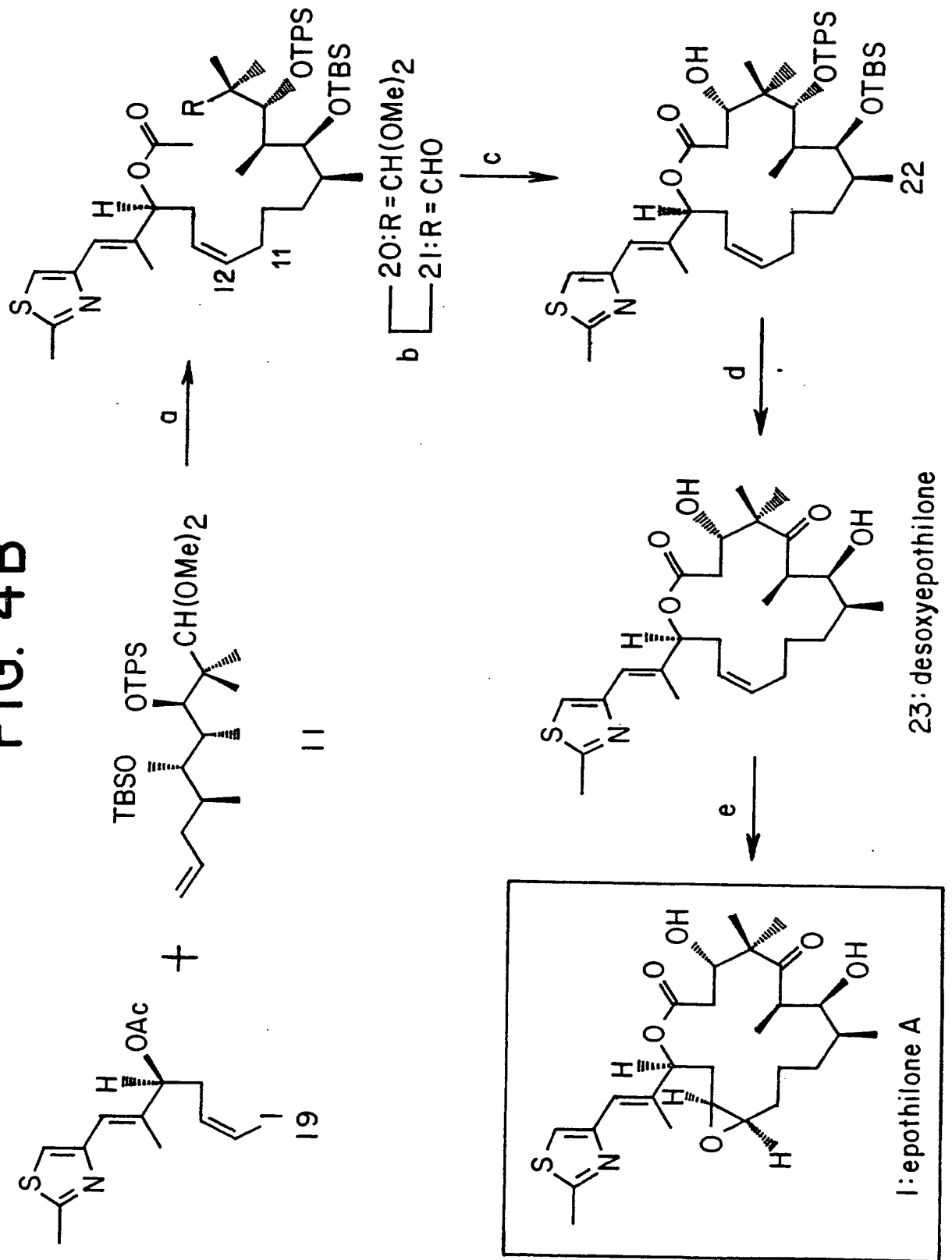
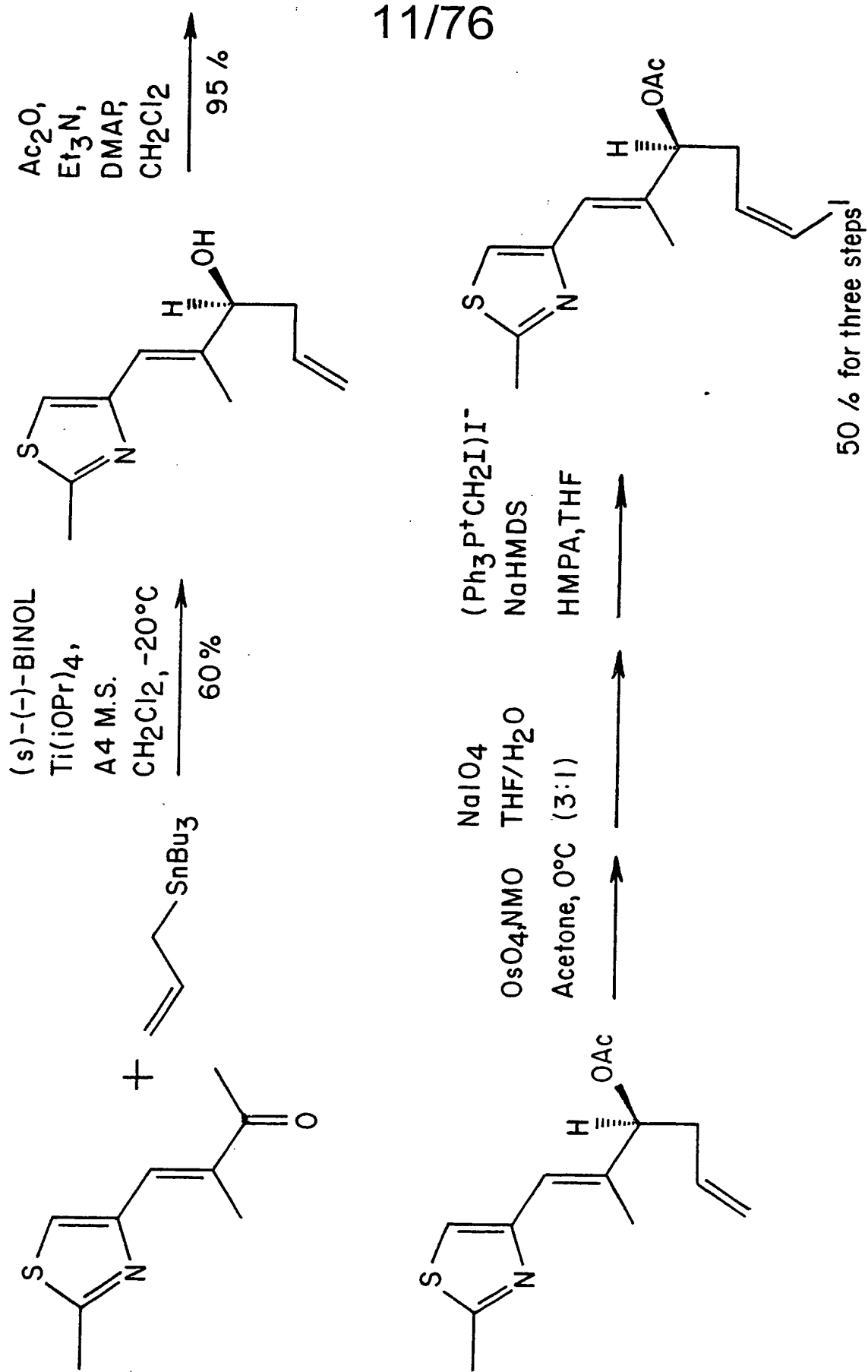


FIG. 4B



56F



**FIG. 6A**

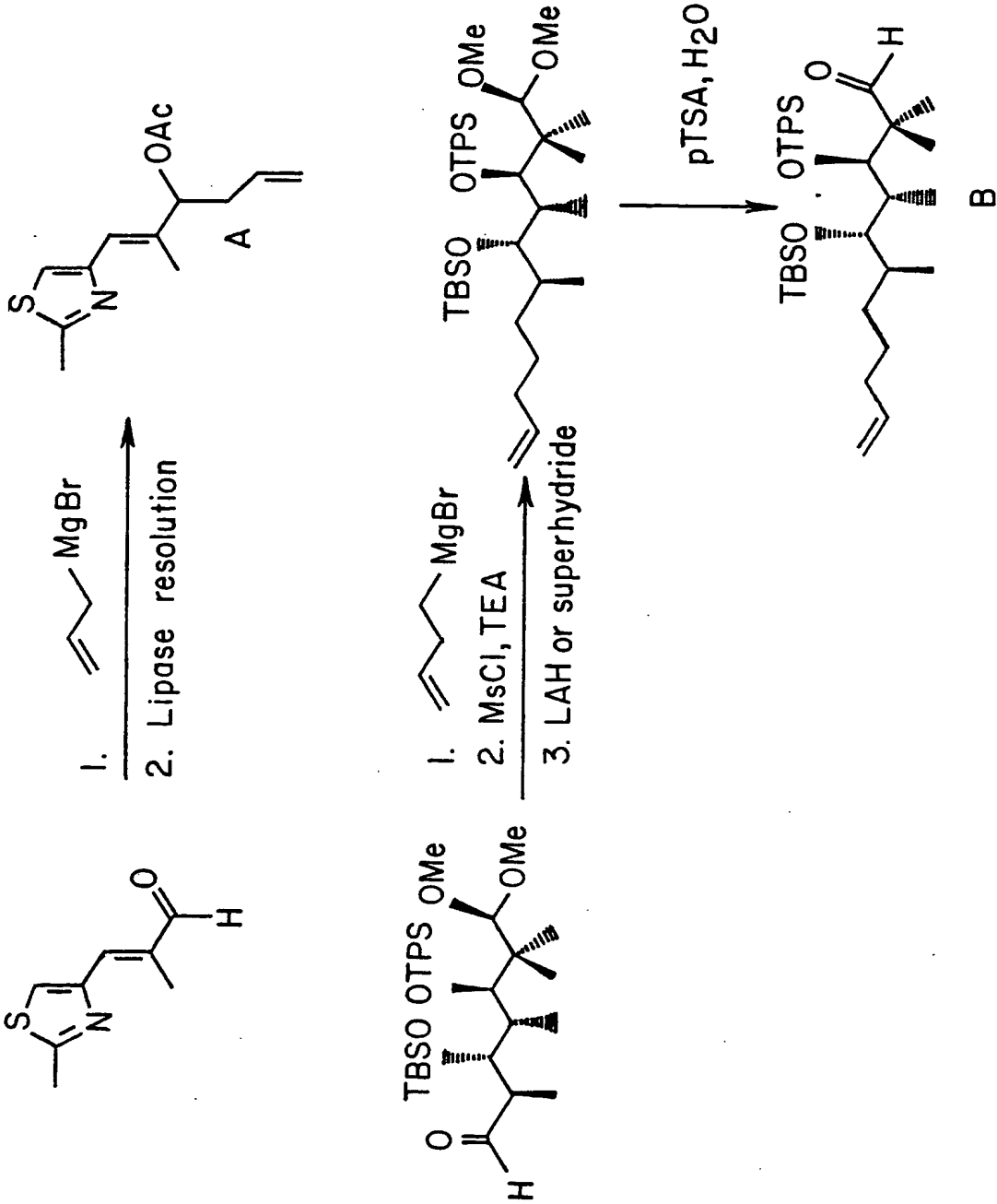
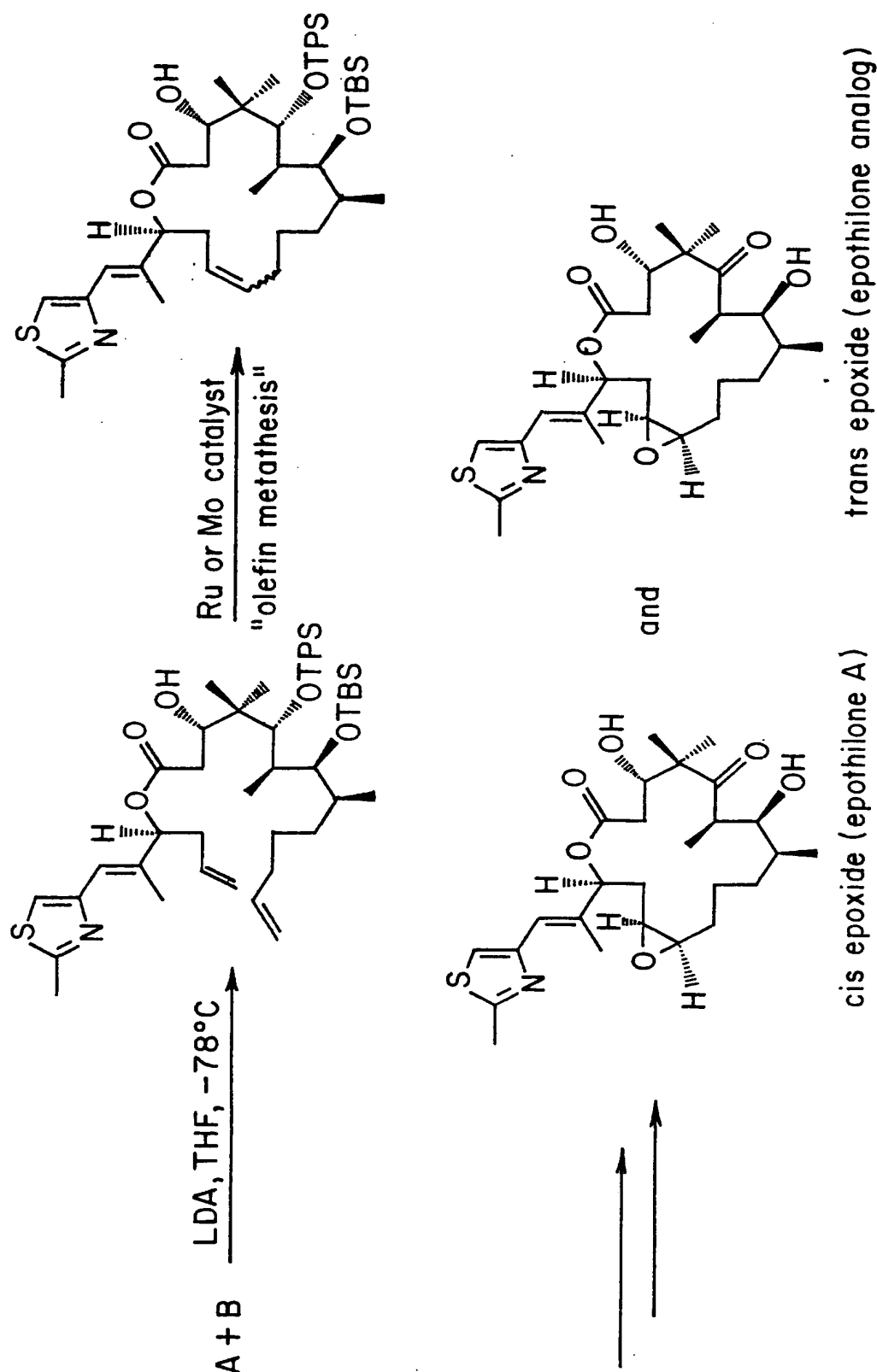
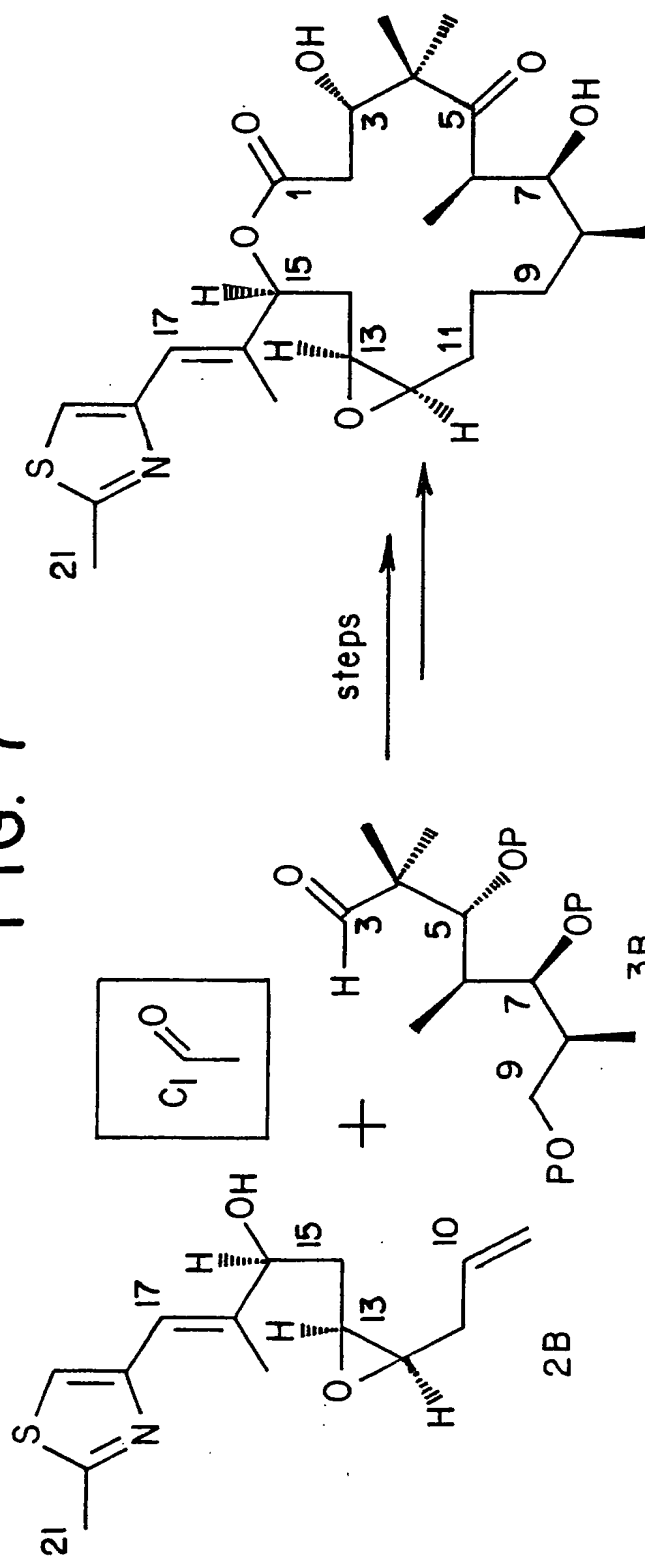


FIG. 6B



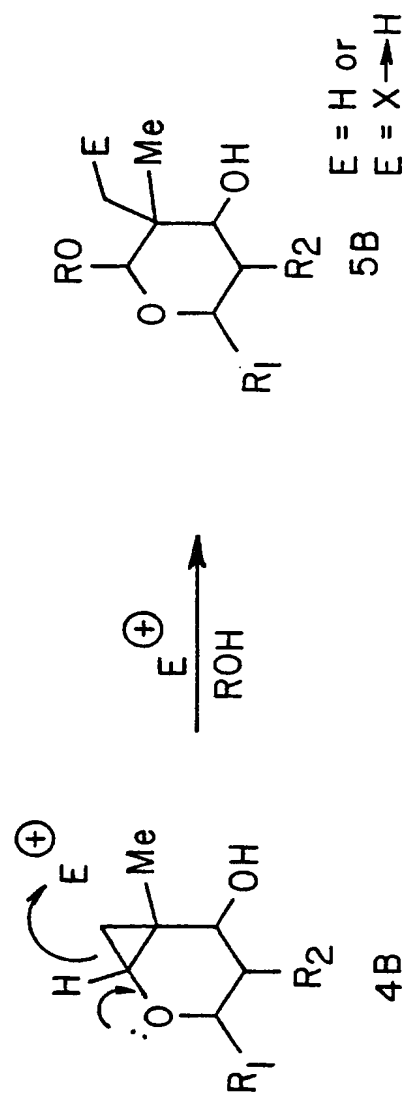
\*17 steps from known starting materials vs. 27 steps for aldol macrocyclization

FIG. 7



P=unspecified protecting group

Convergent strategy for a total synthesis of epothilone A (1).



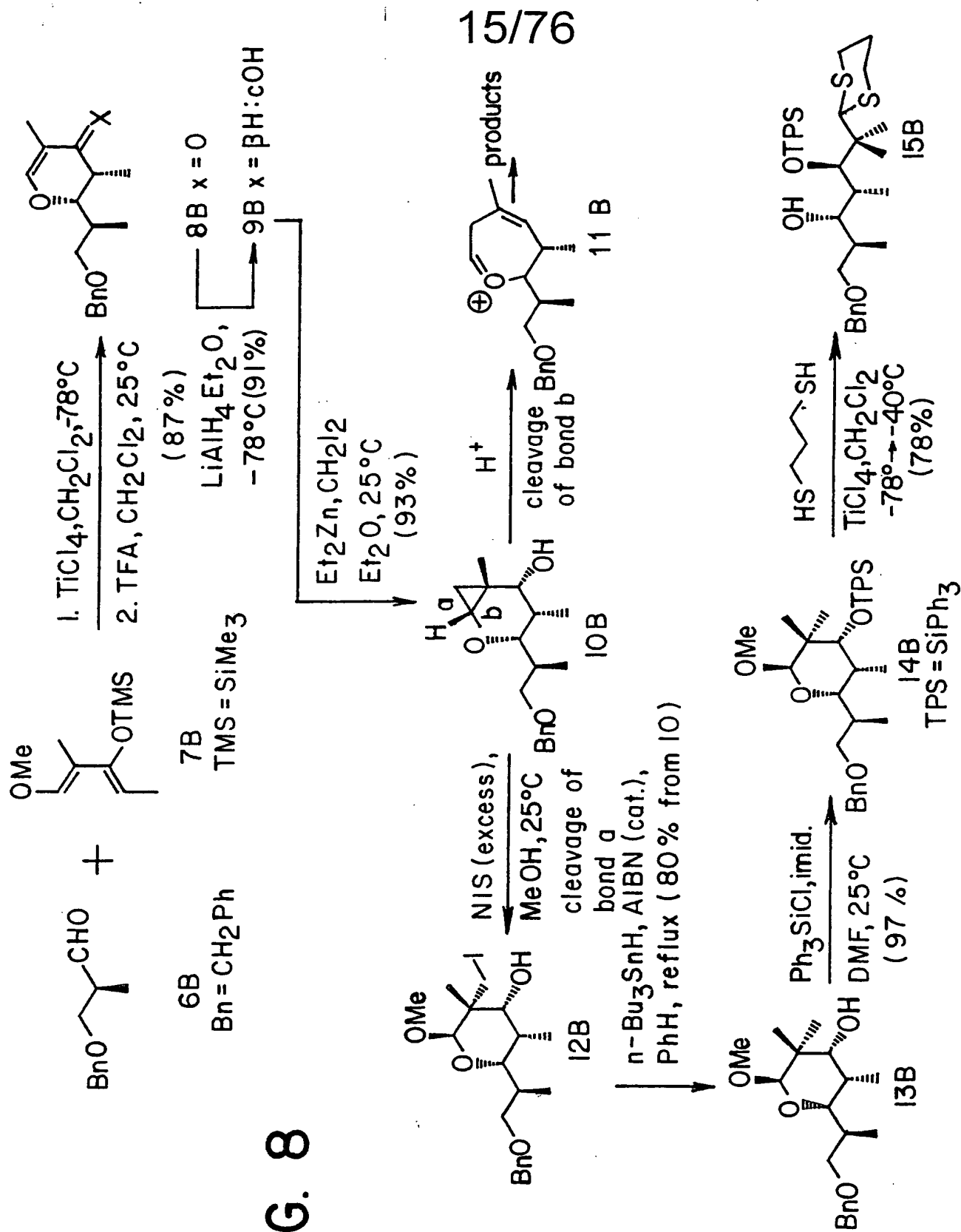
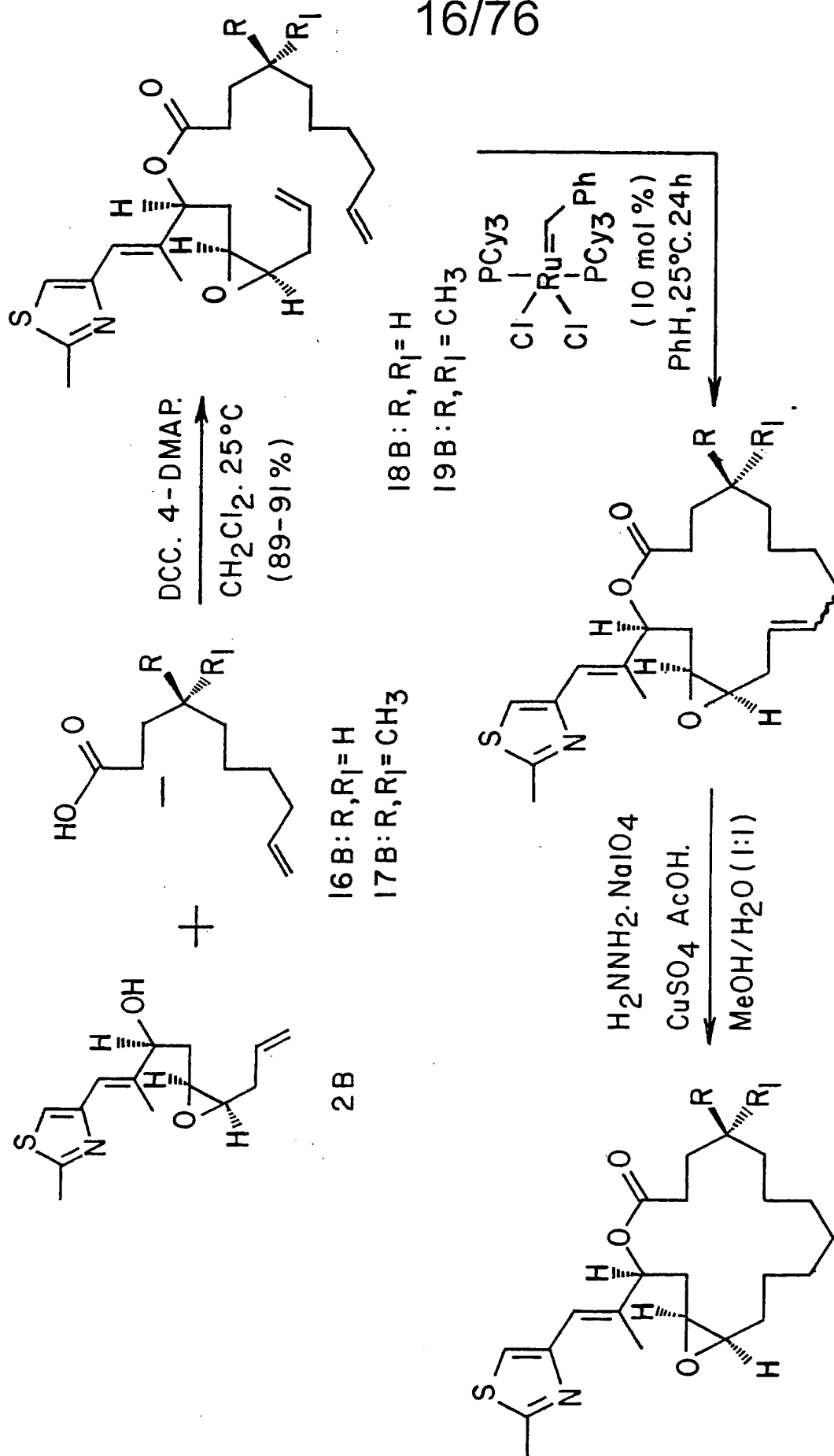


FIG. 8

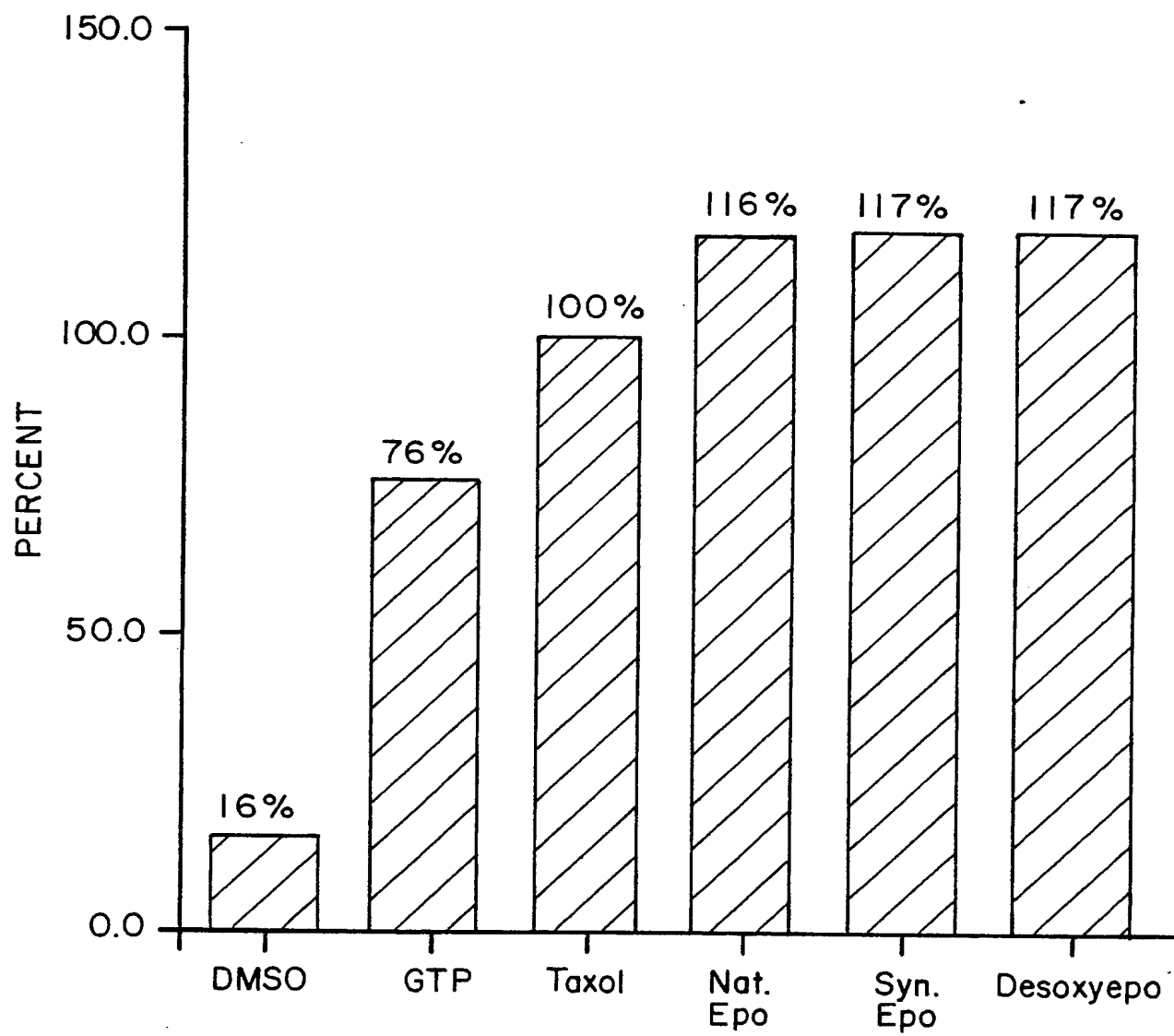
FIG. 9





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FIG. 10



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FIG. 11

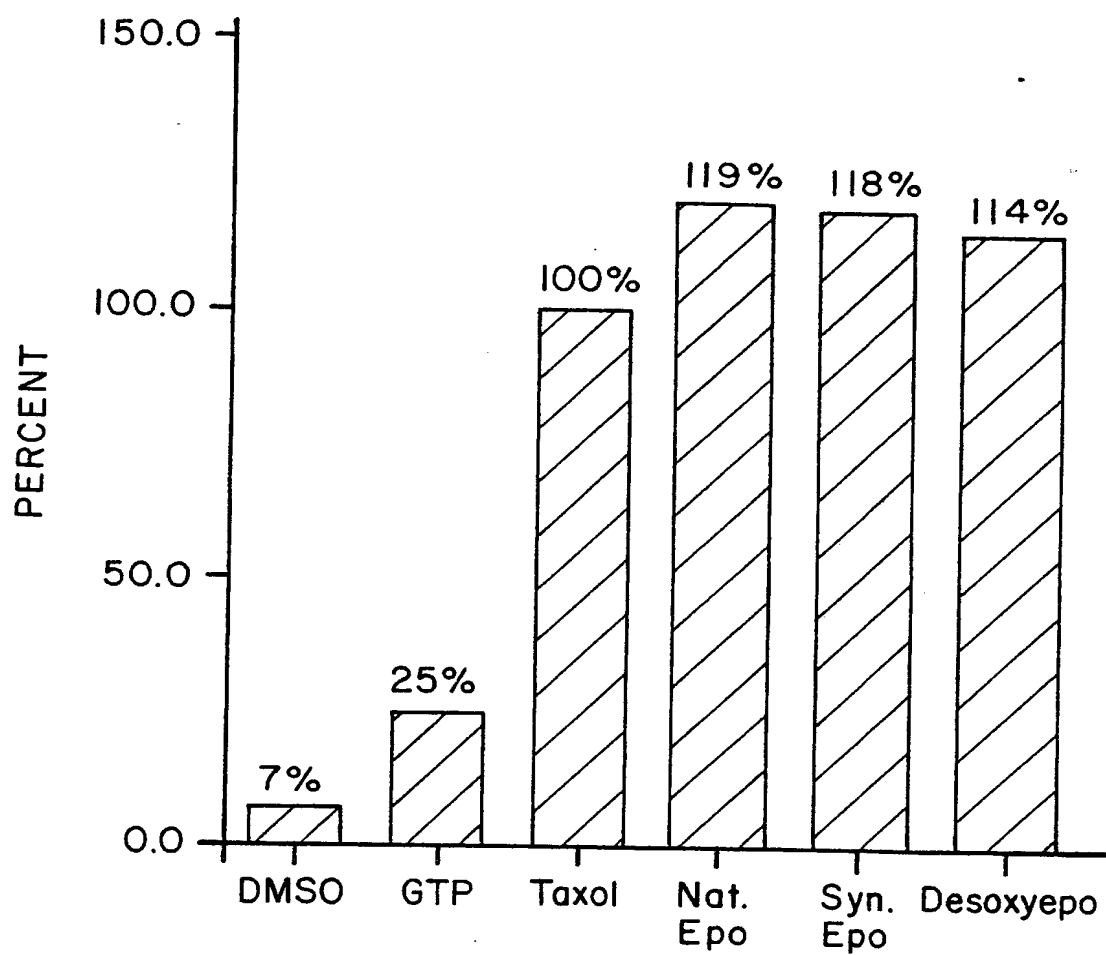


FIG. 13

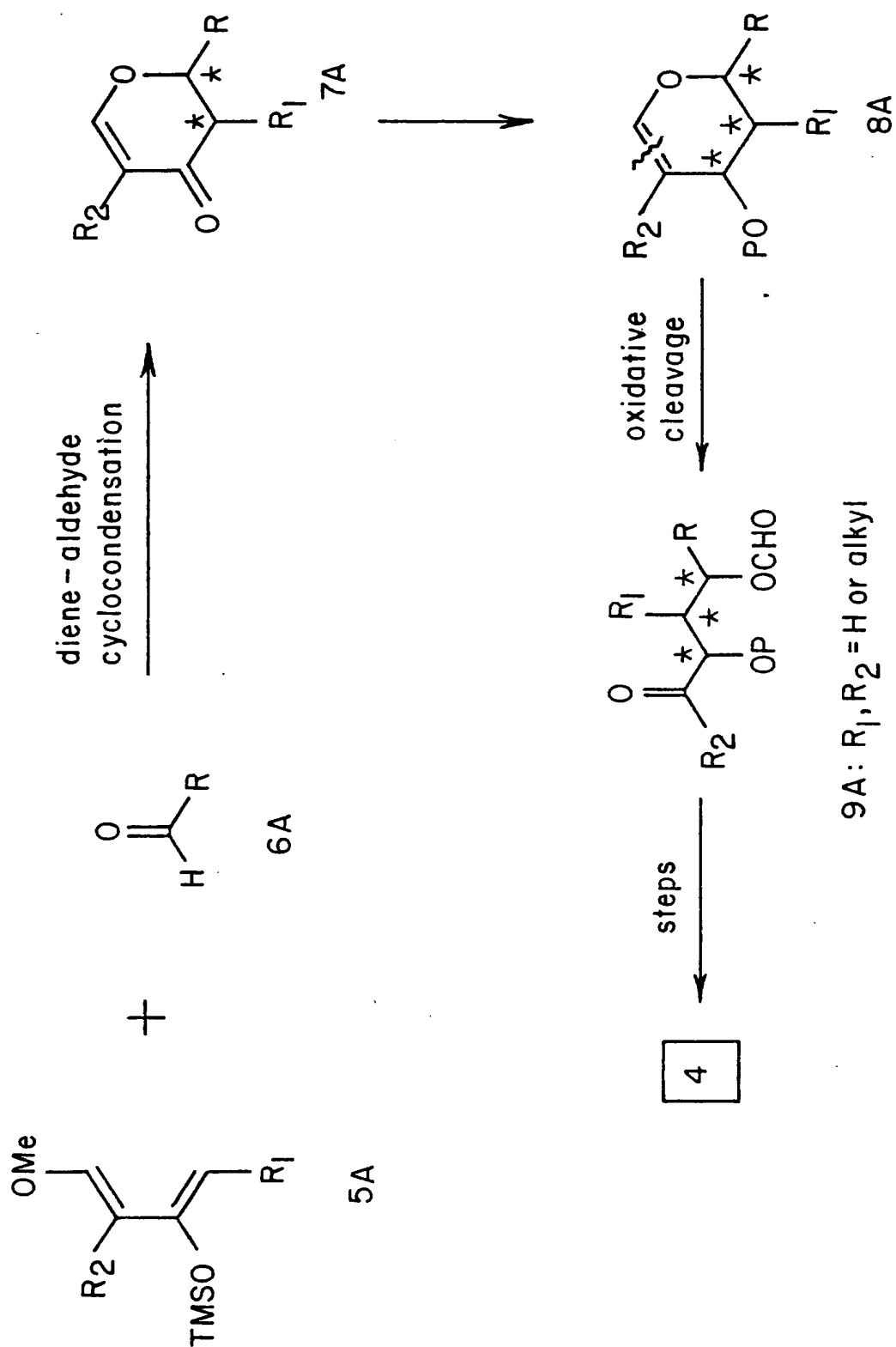
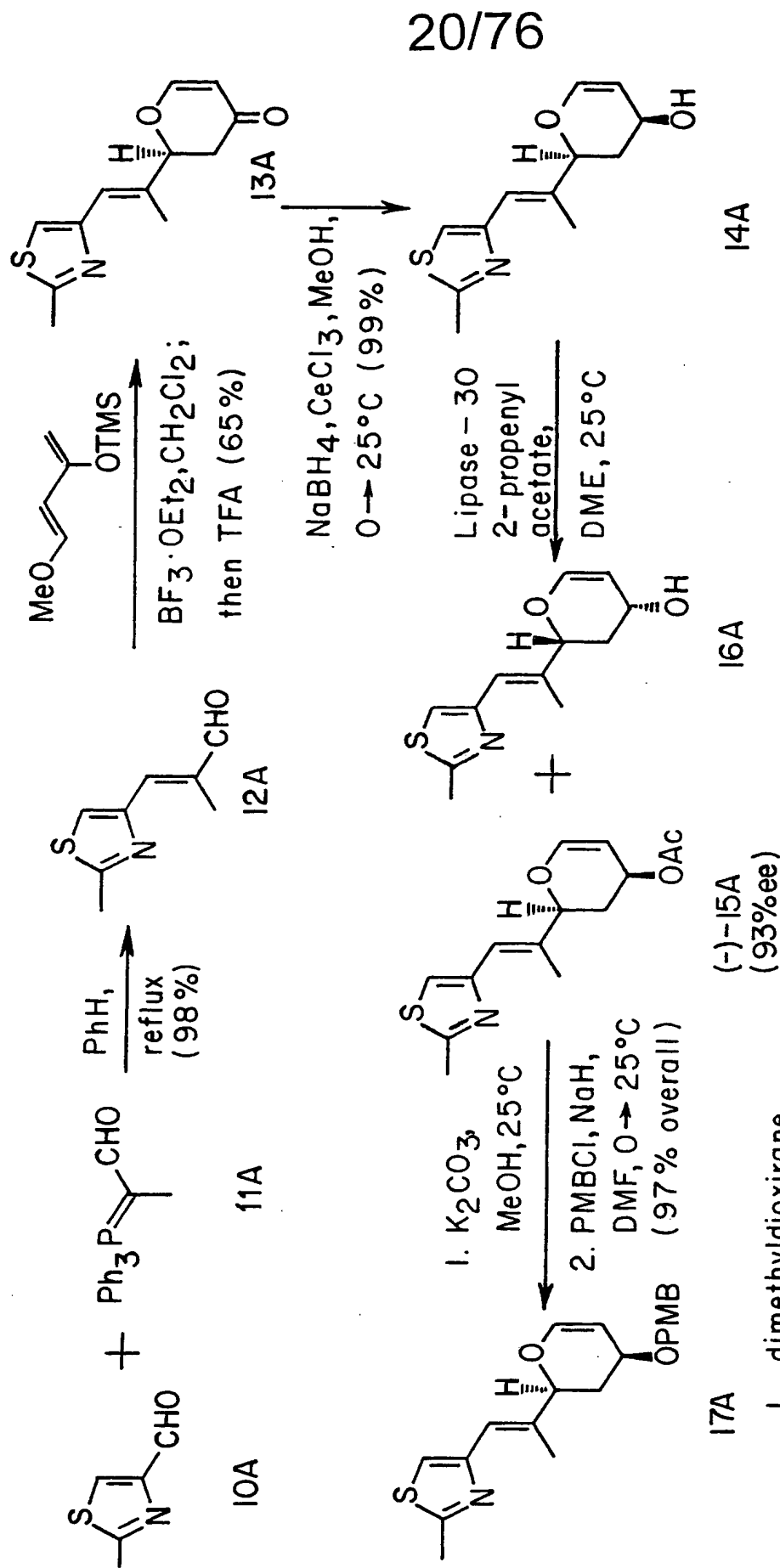


FIG. 14A



A — A

FIG. 14B

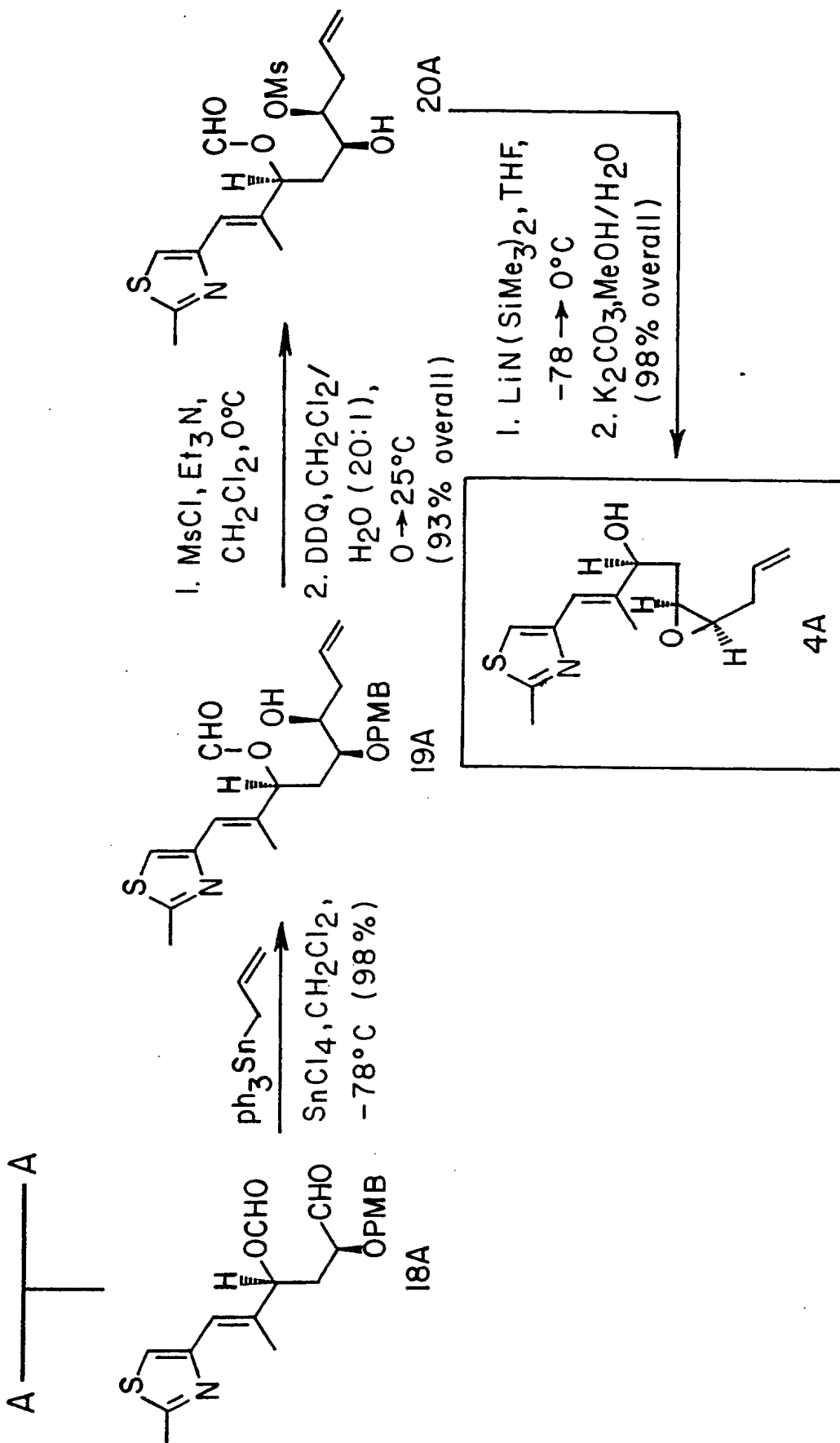


FIG. 15

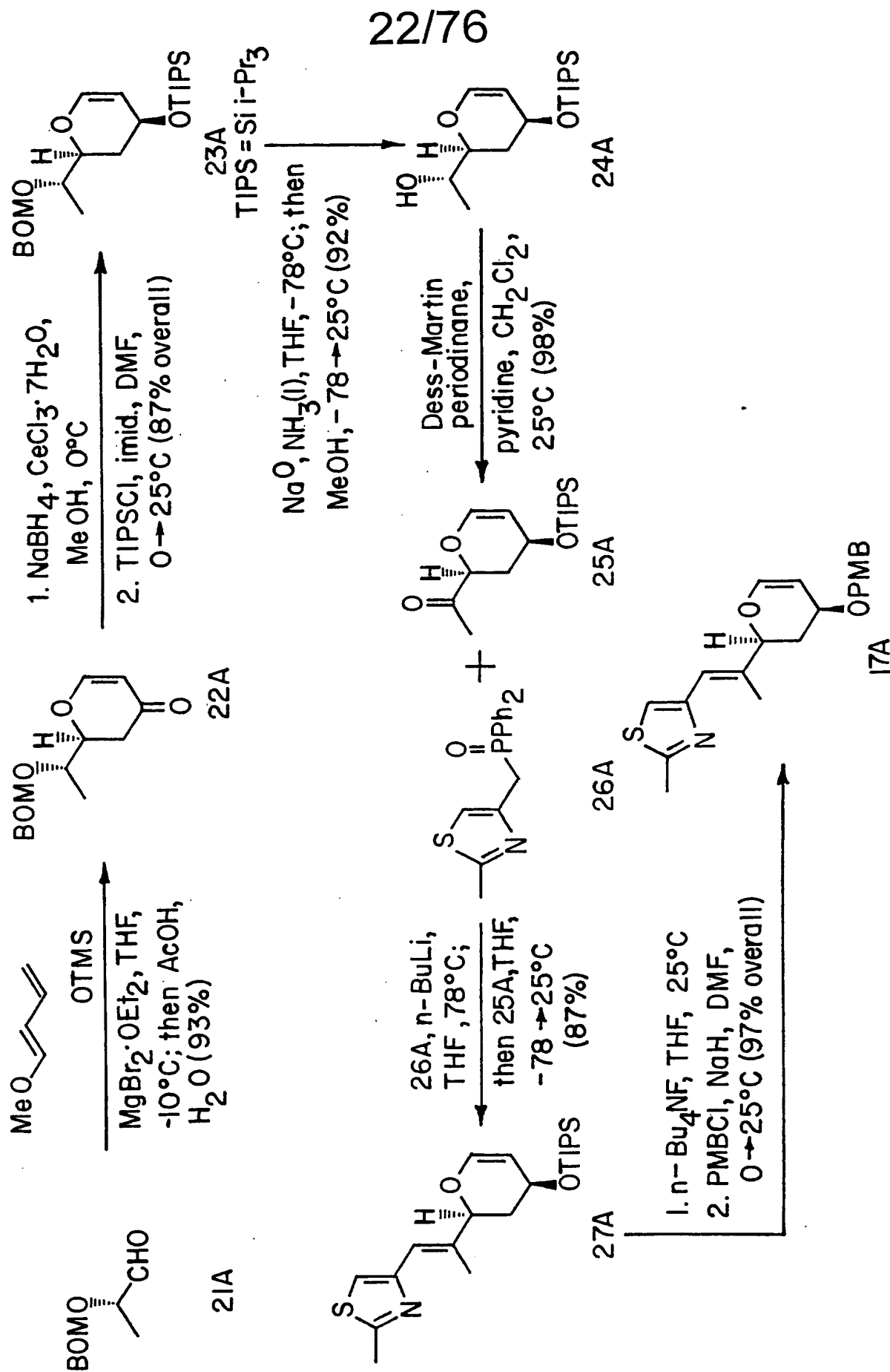
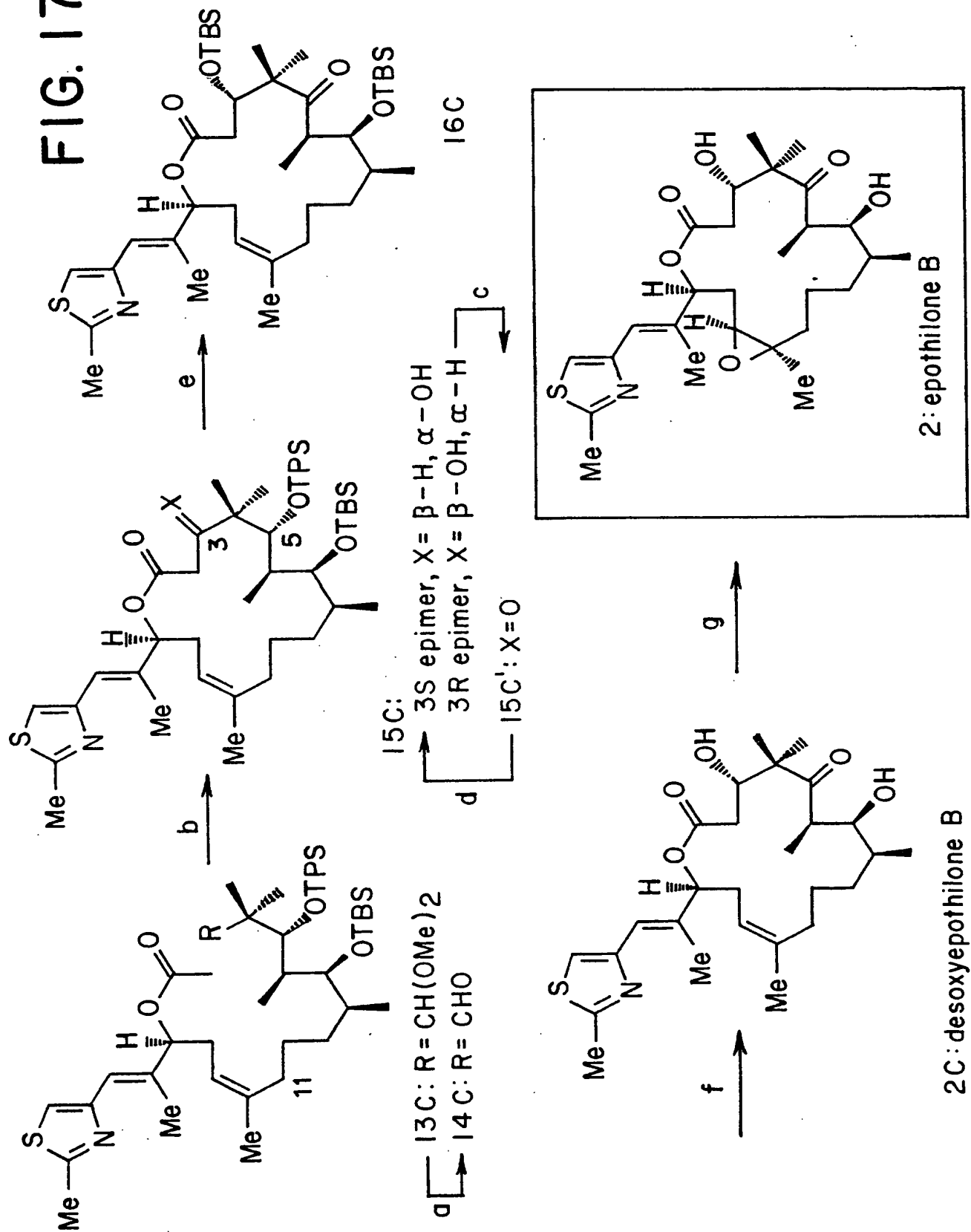




FIG. 17





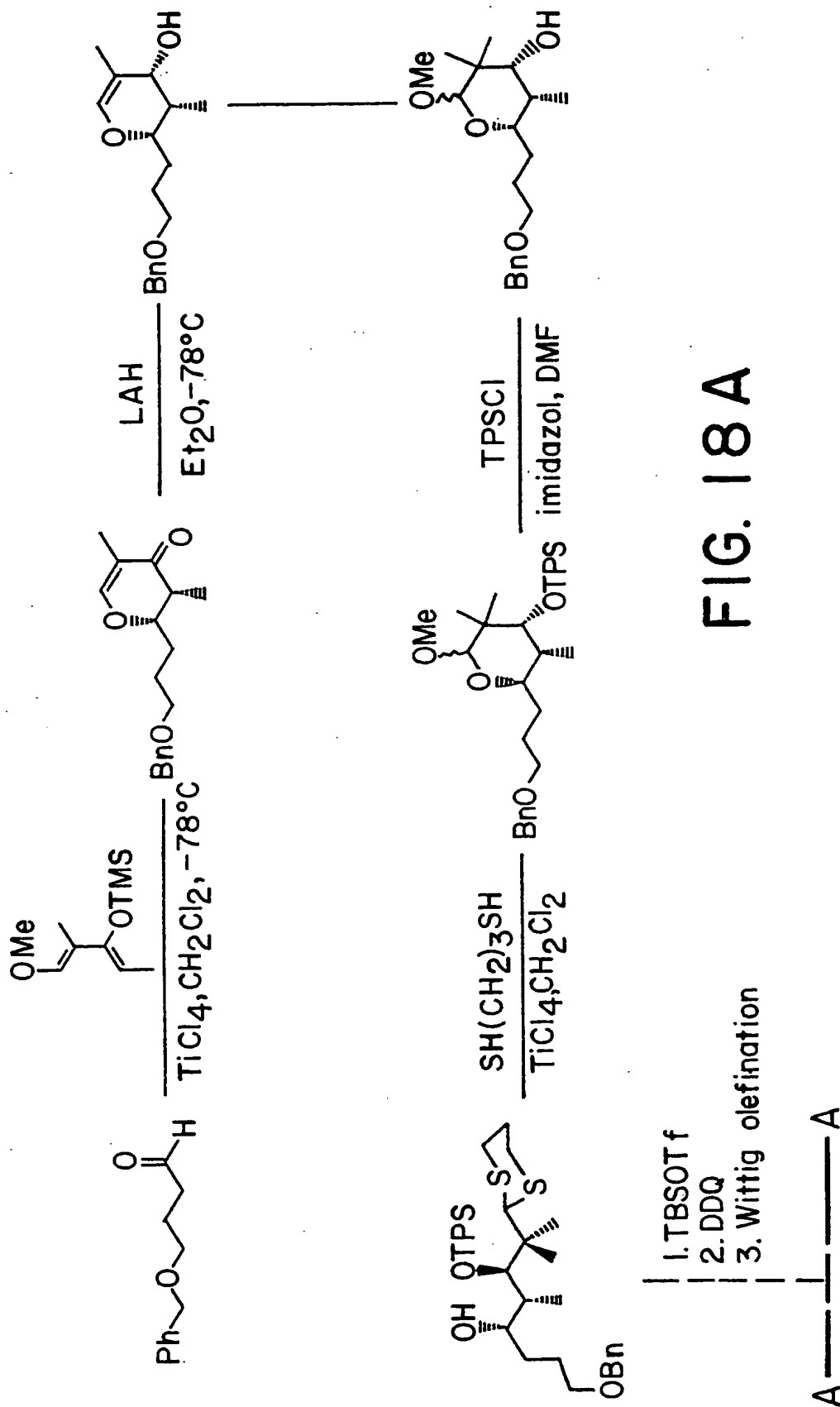


FIG. 18A

FIG. 18B

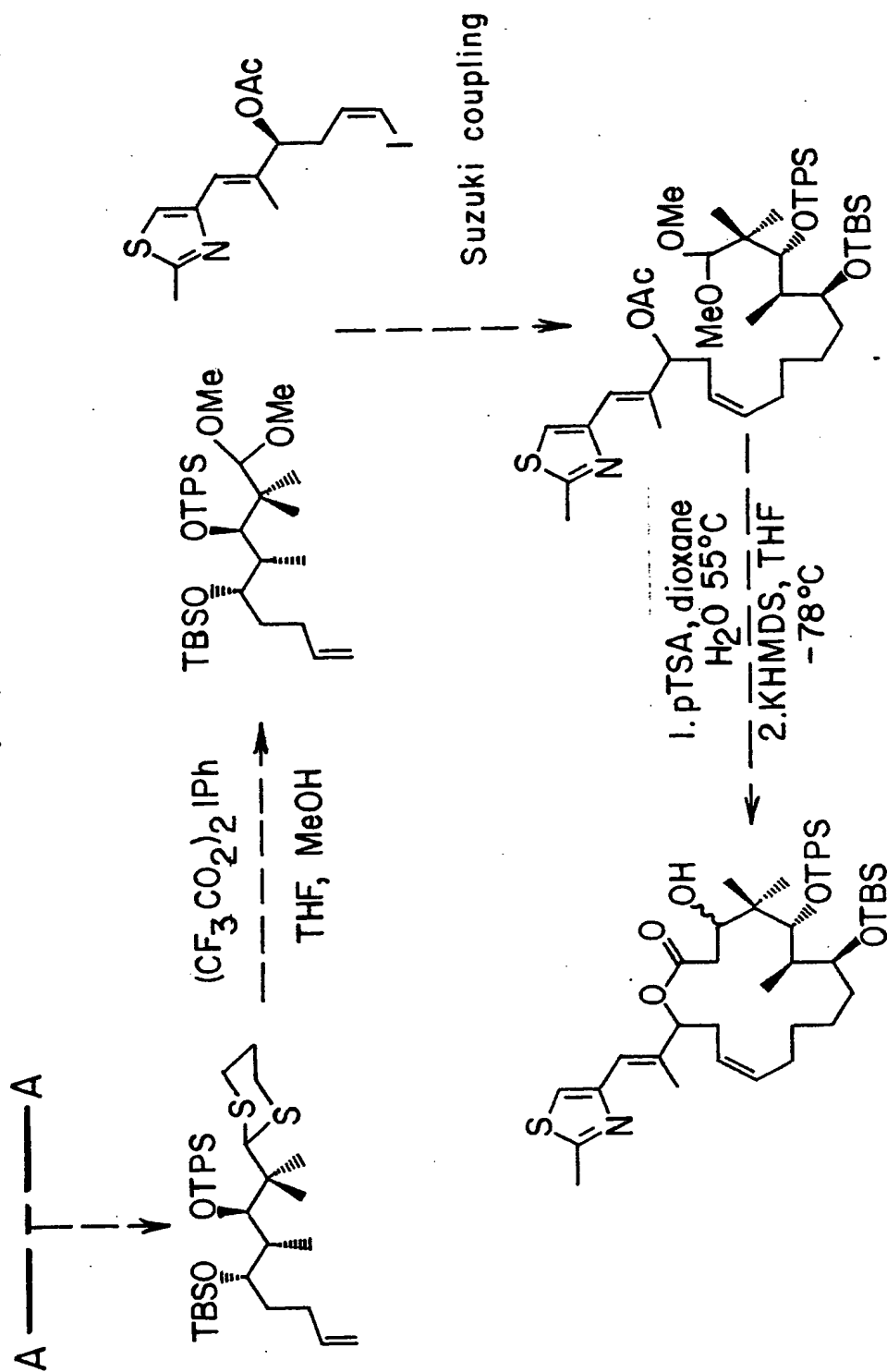
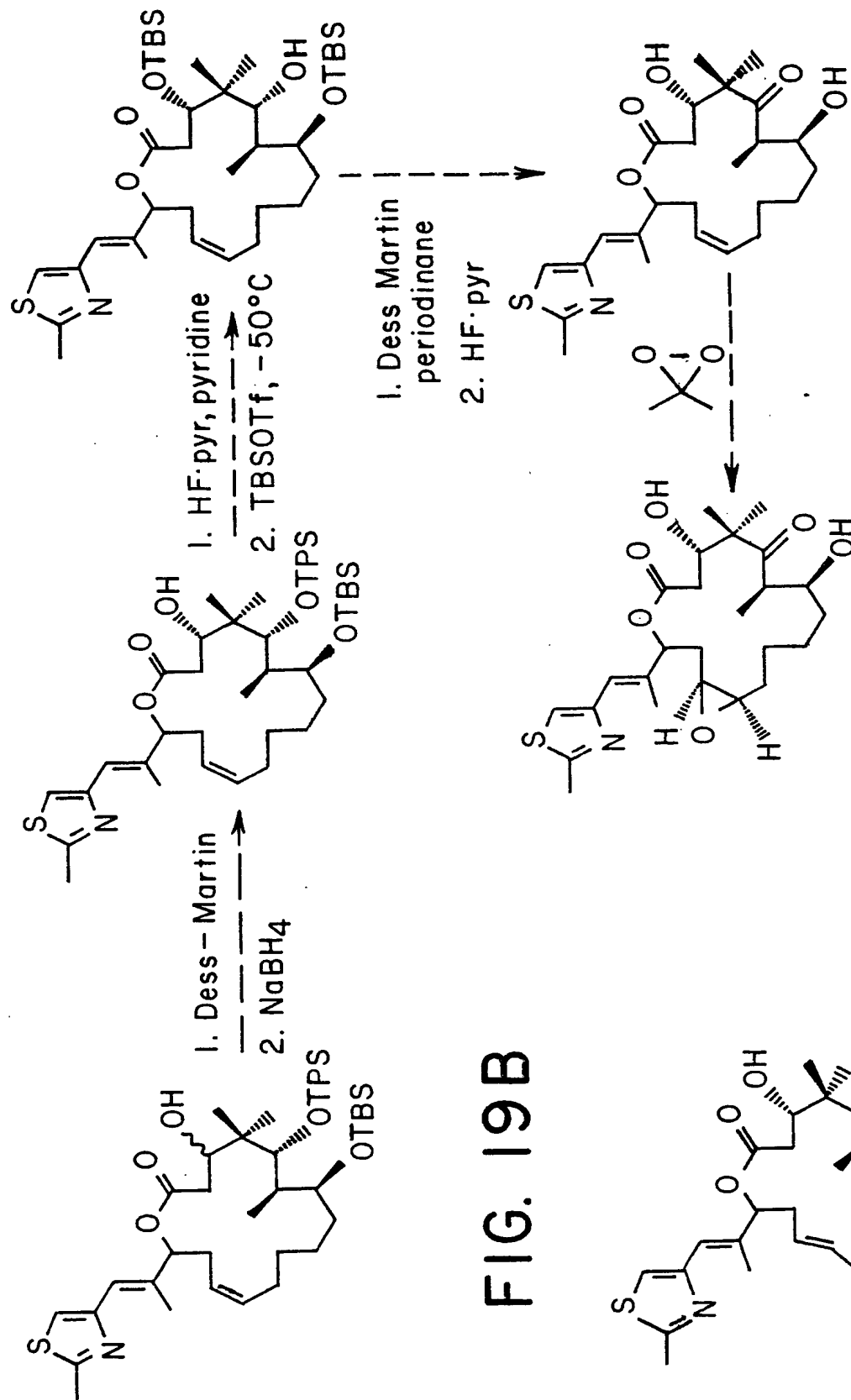
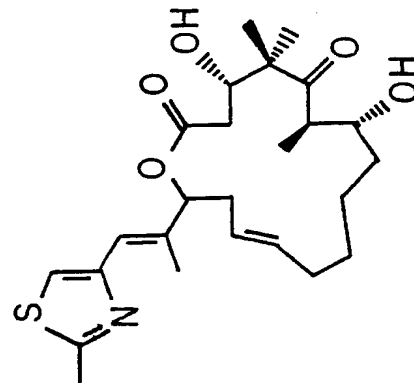


FIG. 19A



**FIG. 19B**



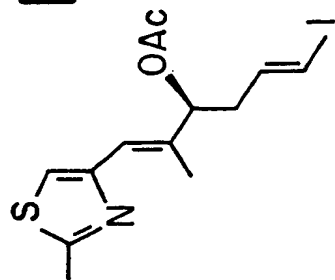


FIG. 19C

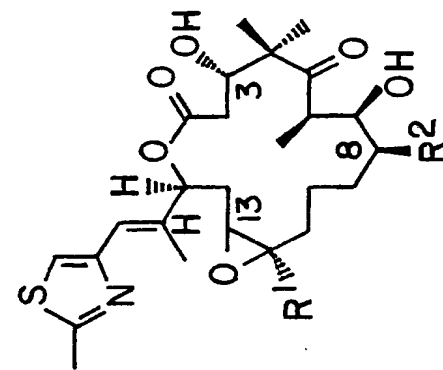
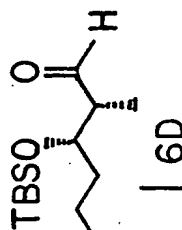
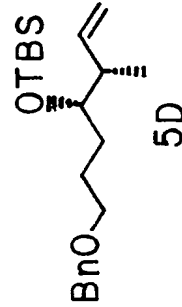
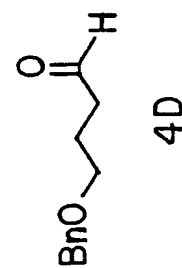


FIG. 20A

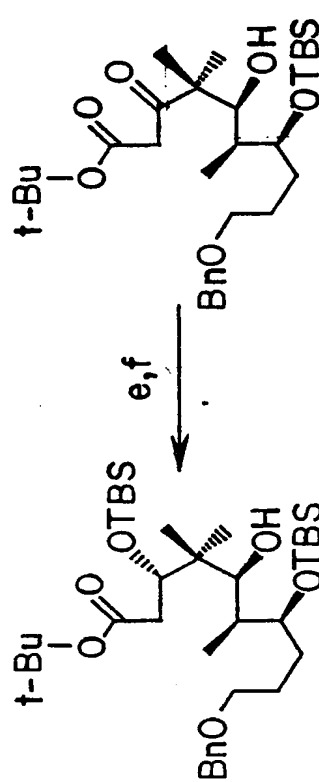
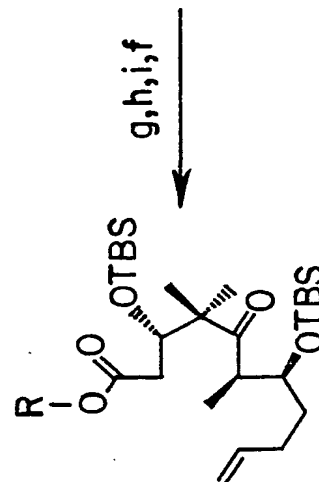
$R^1 = H, R^2 = Me$ ; epothilone A  
 $R^1 = R^2 = Me$ ; epothilone B

$R^1 = R^2 = H$ ; Cg-desmethyl-epothilone A (3D)



TBS = Sit-buMe<sub>2</sub>

FIG. 20B



k  $\begin{cases} 9D \# R = t\text{-butyl} \\ 10D \# R = TBS \end{cases}$

8D

7D

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FIG. 21

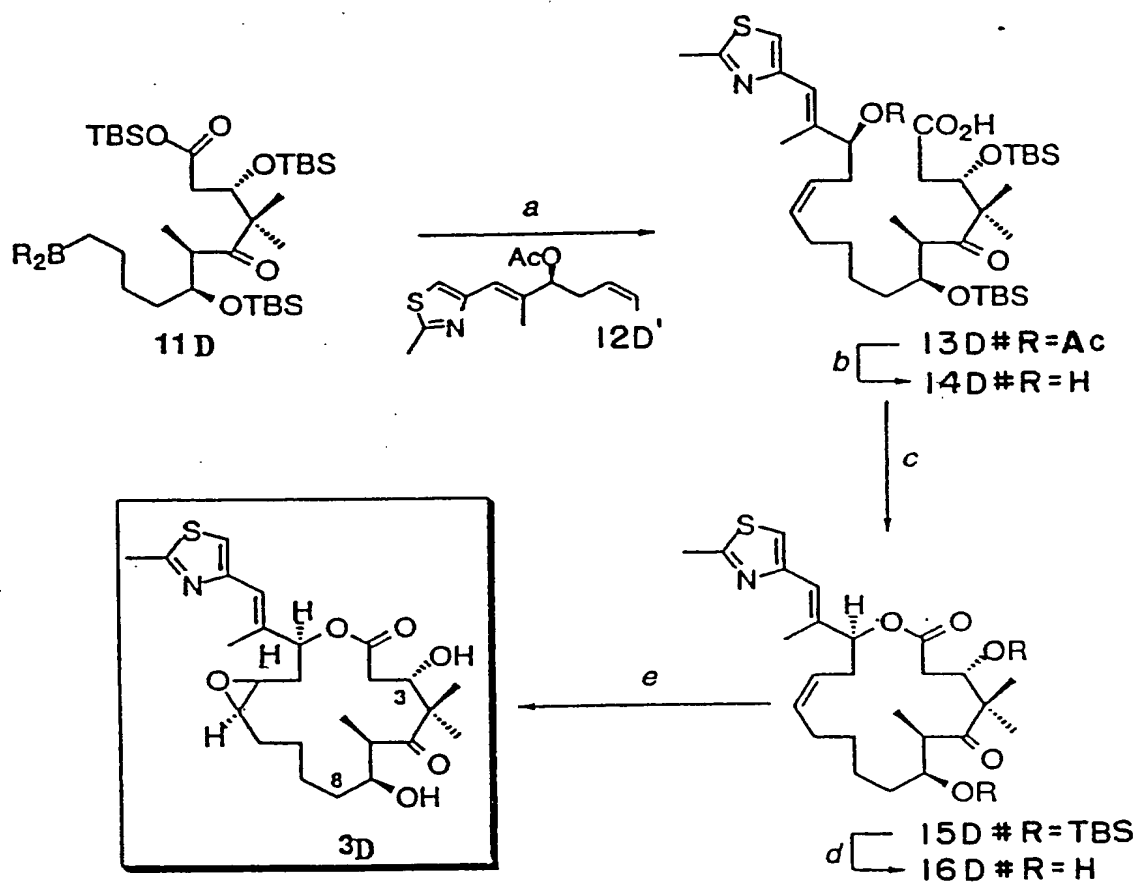


FIG. 22A

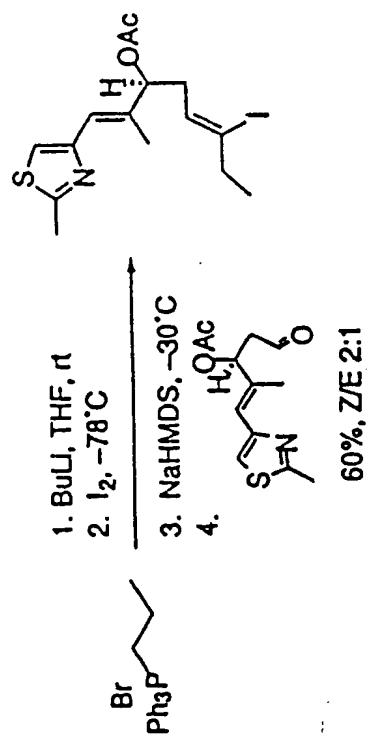


FIG. 22B

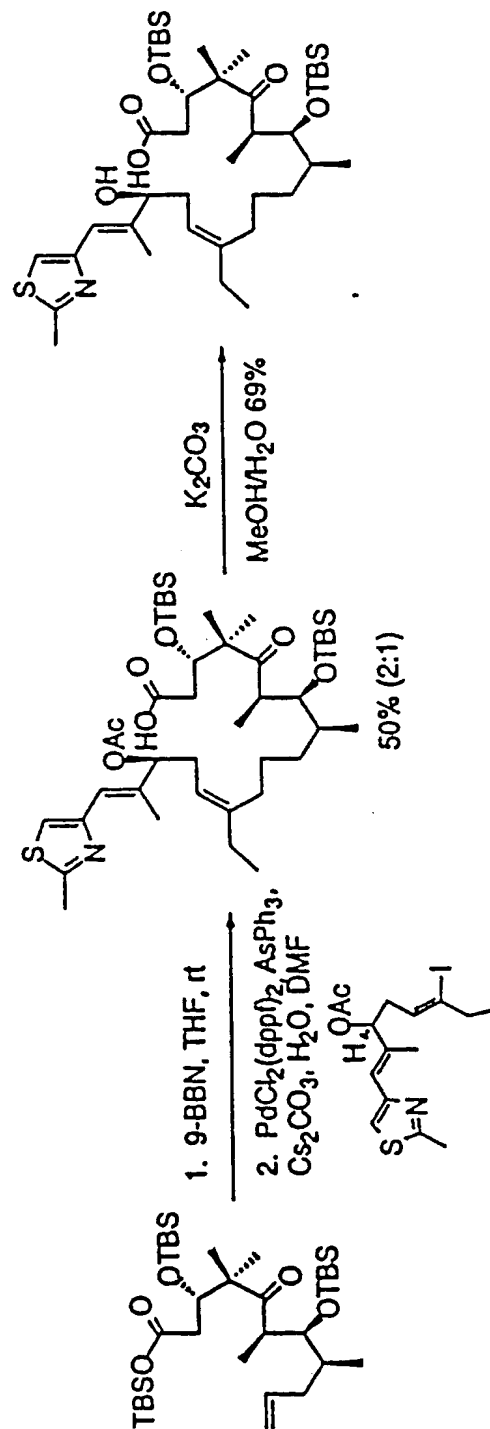


FIG. 22C

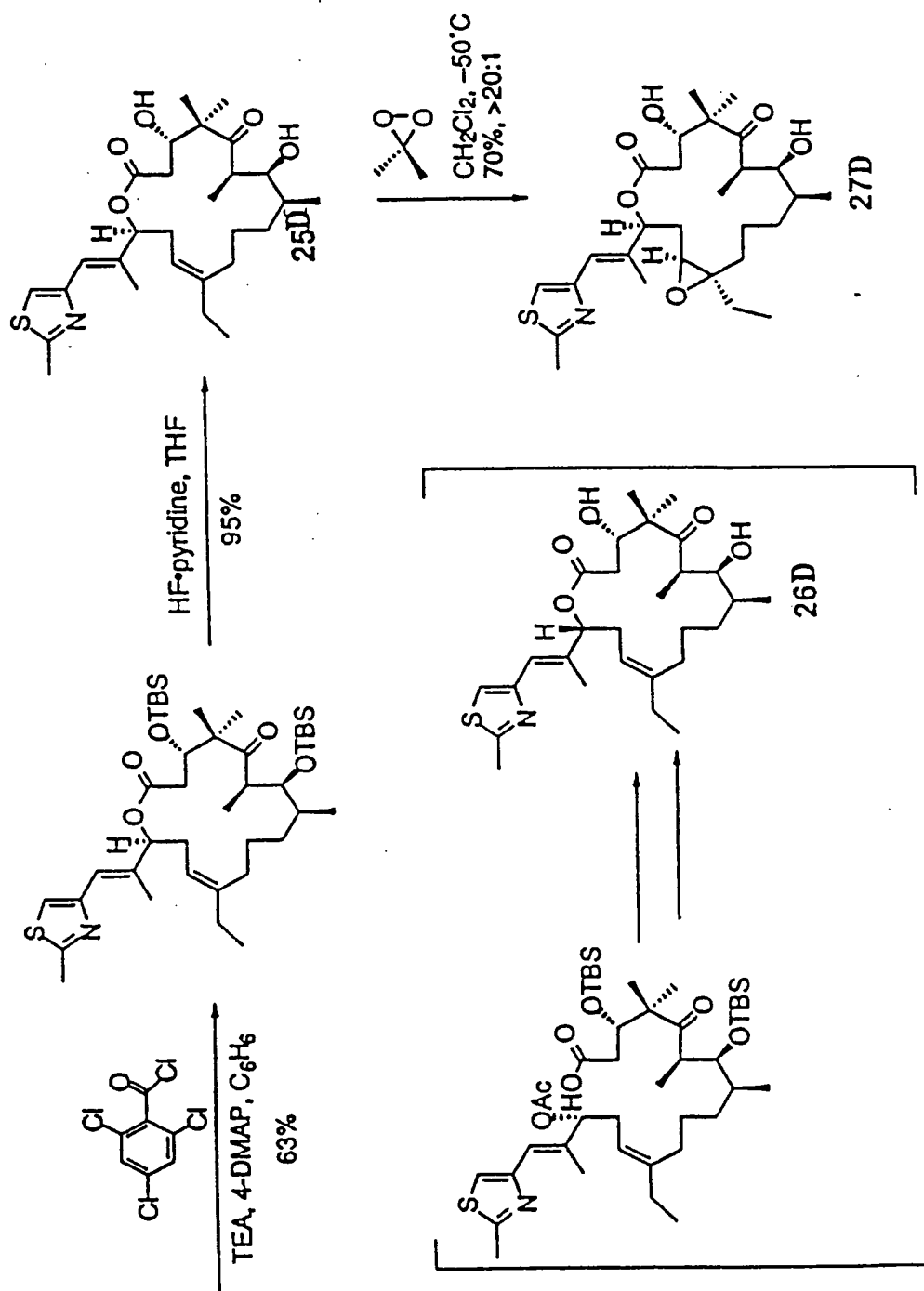


FIG. 23A

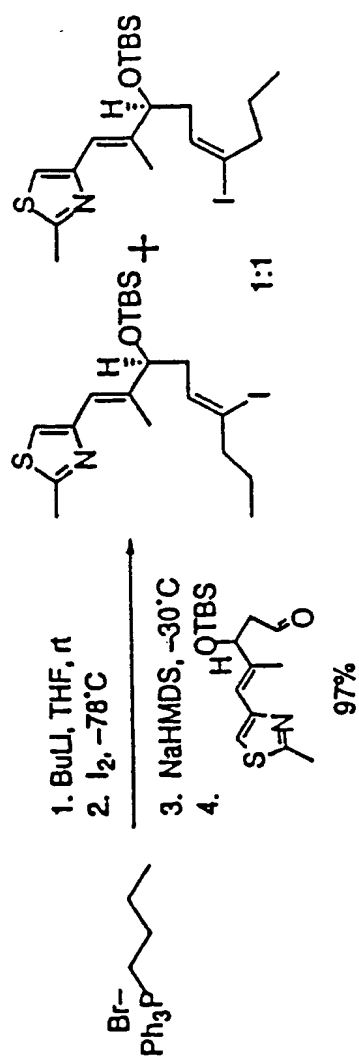


FIG. 23B

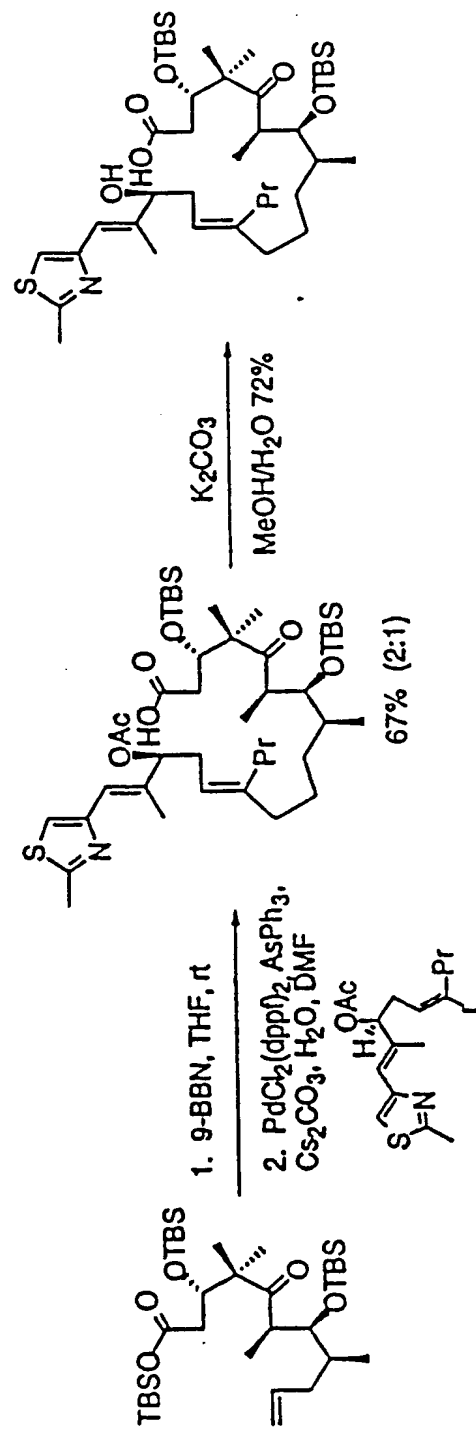




FIG. 23C

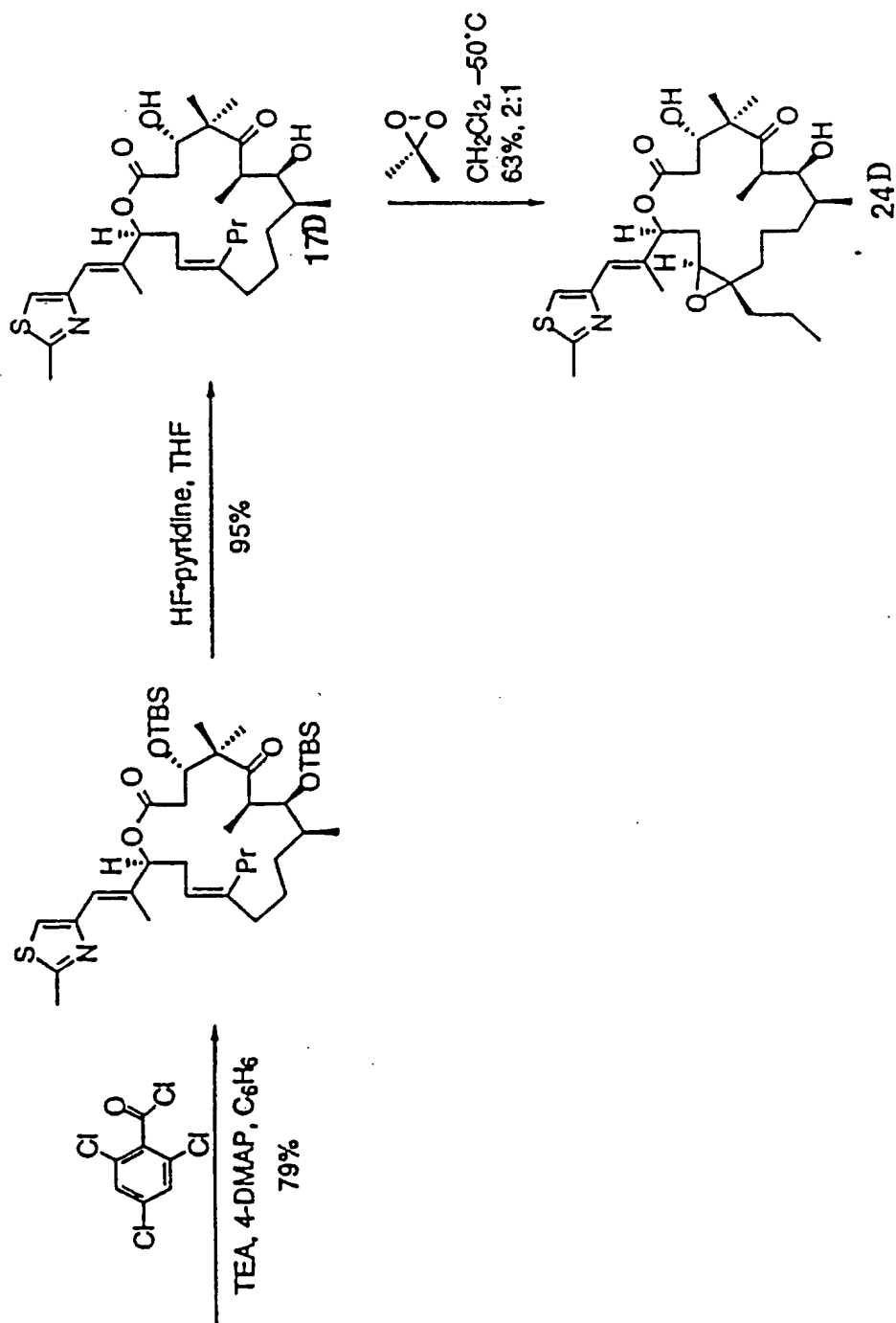
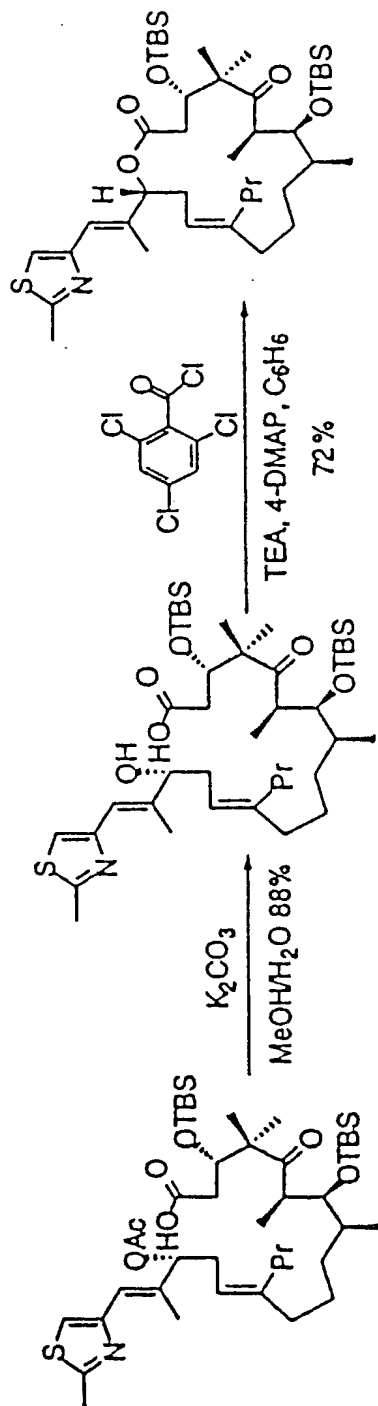


FIG. 24A



minor product from suzuki  
coupling reaction

FIG. 24B

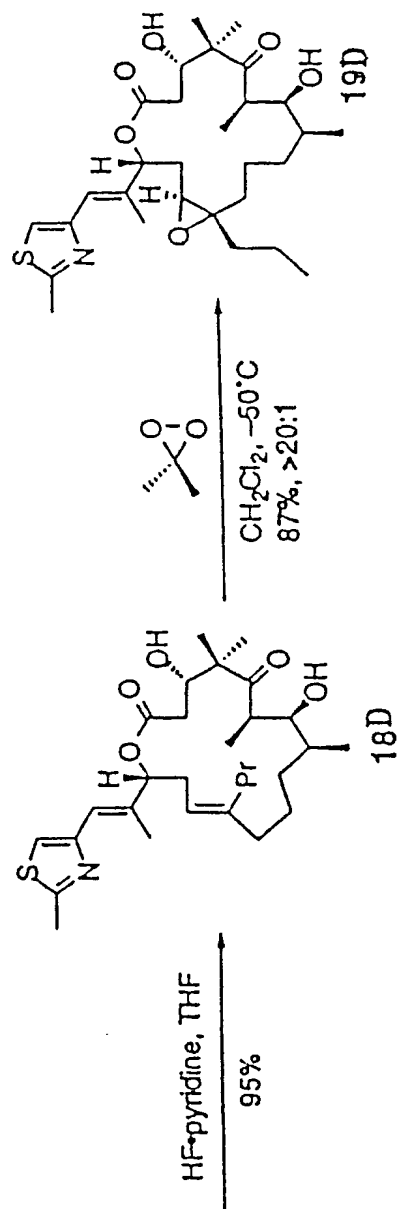


FIG. 25A

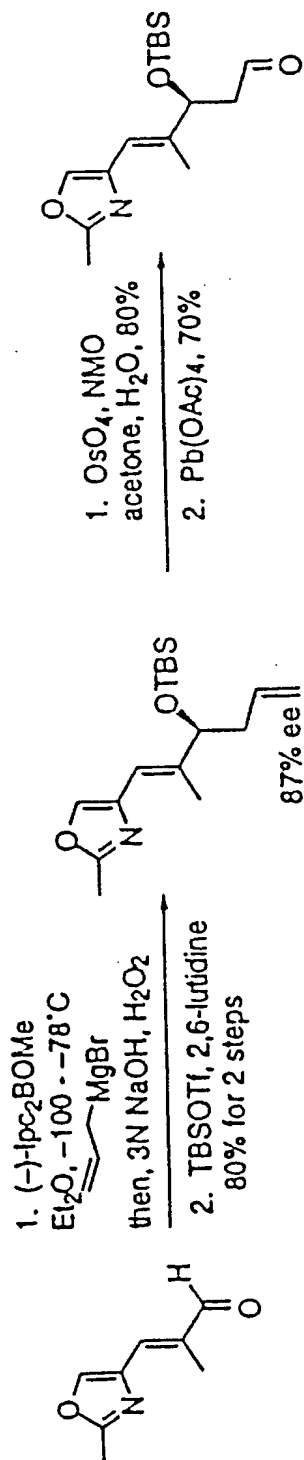


FIG. 25B

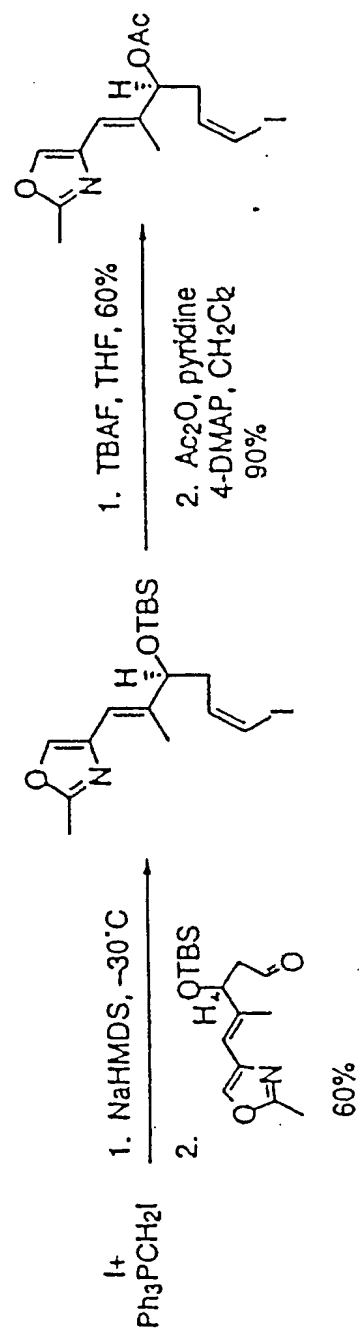


FIG. 25C

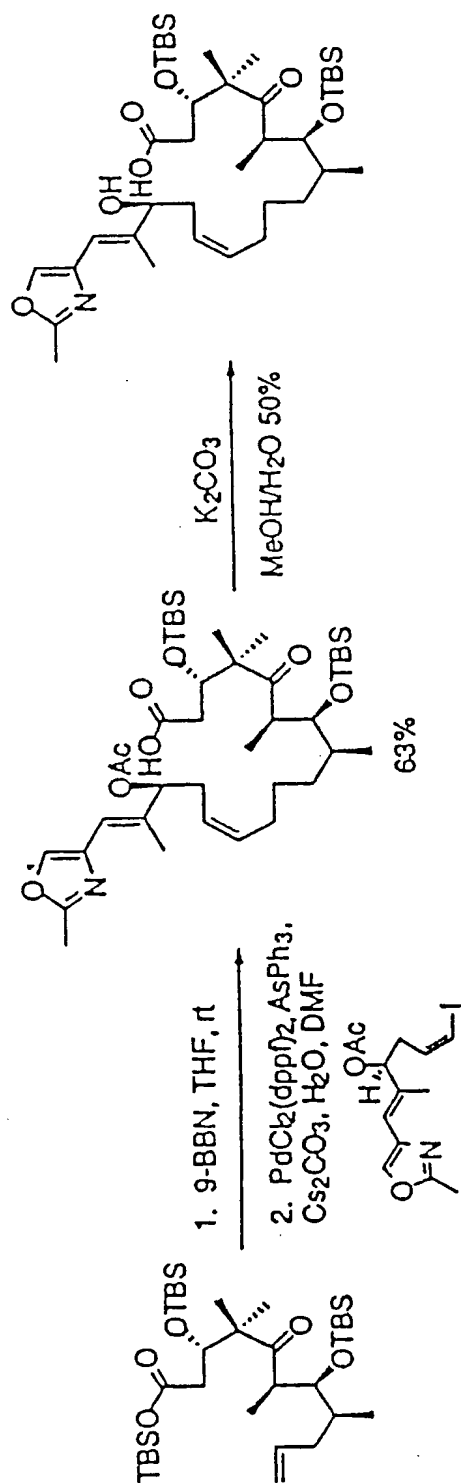


FIG. 25D

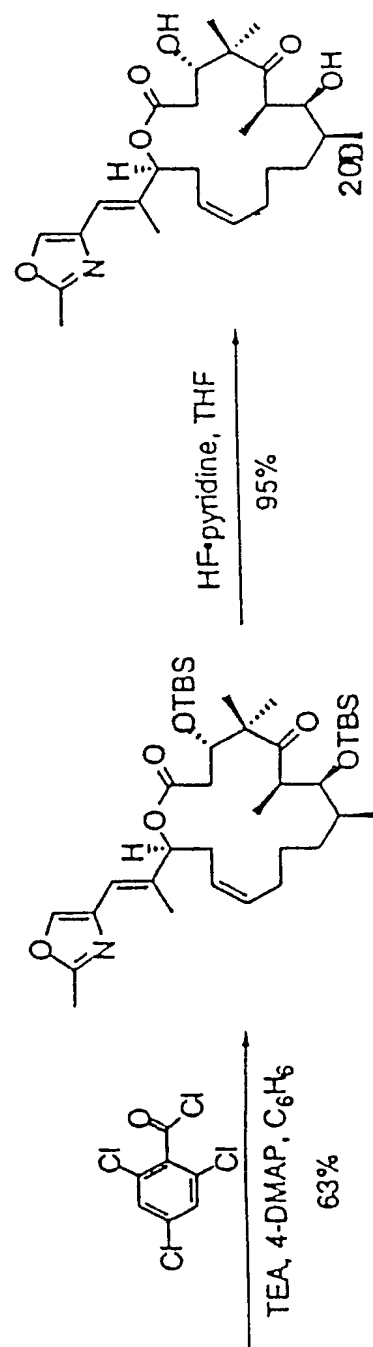


FIG. 26A

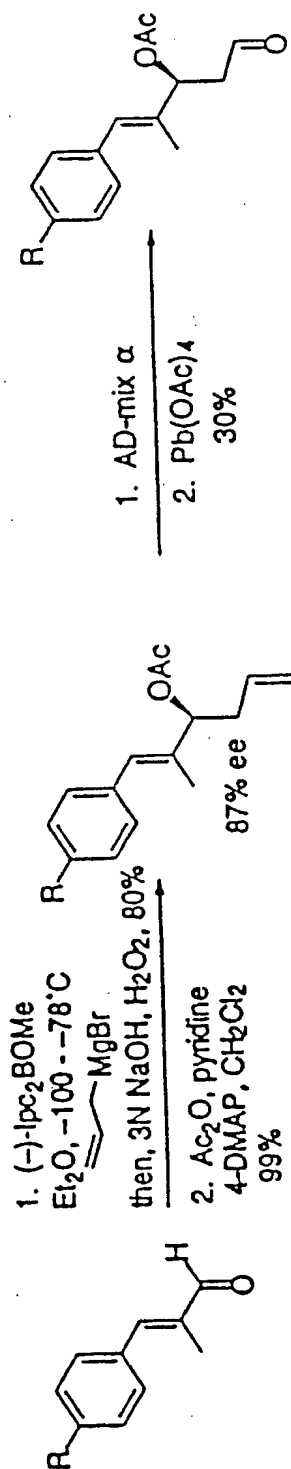
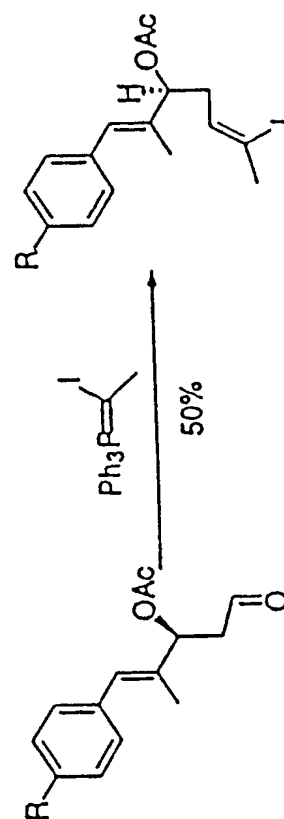


FIG. 26B



R = H, F, CF<sub>3</sub>,  
 R=H is the only compound  
 completed, F and CF<sub>3</sub> are nearly  
 completed

FIG. 26C

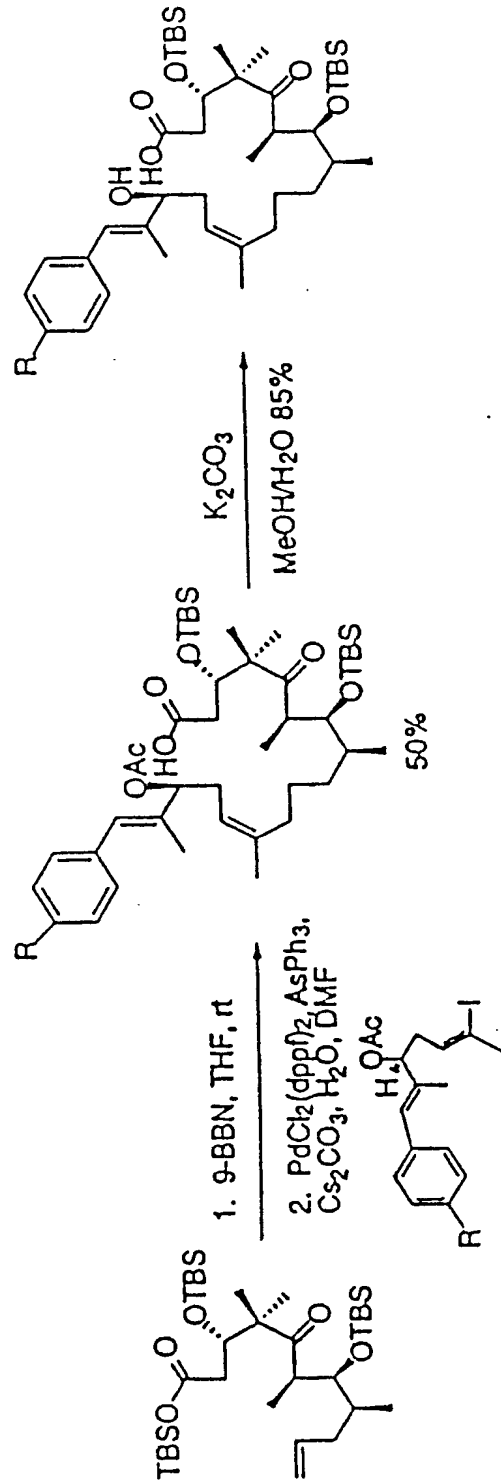


FIG. 26D

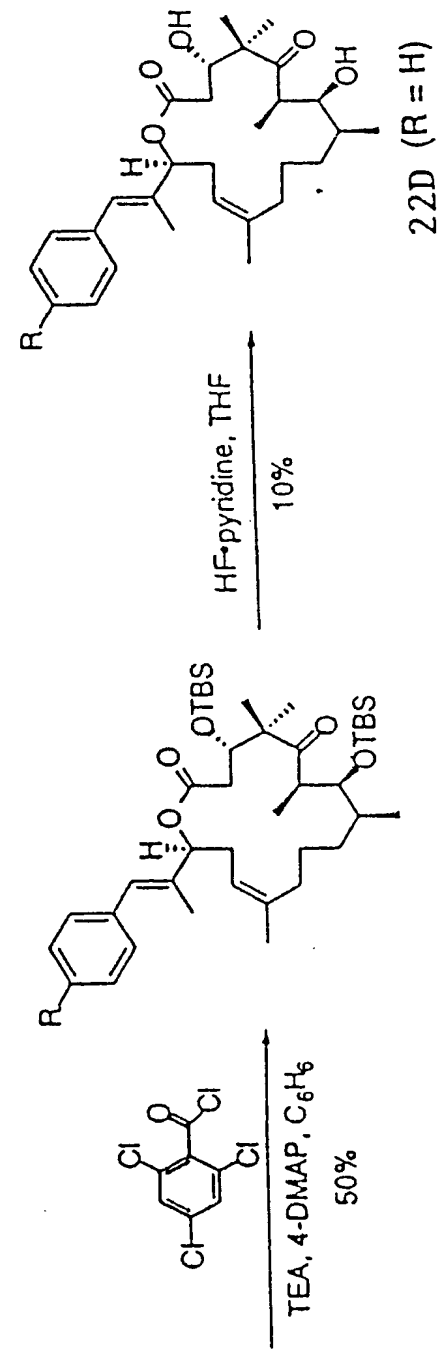


FIG. 27A

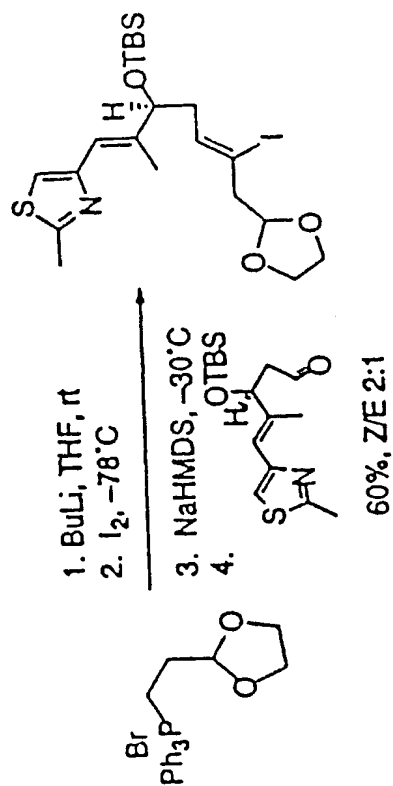


FIG. 27B

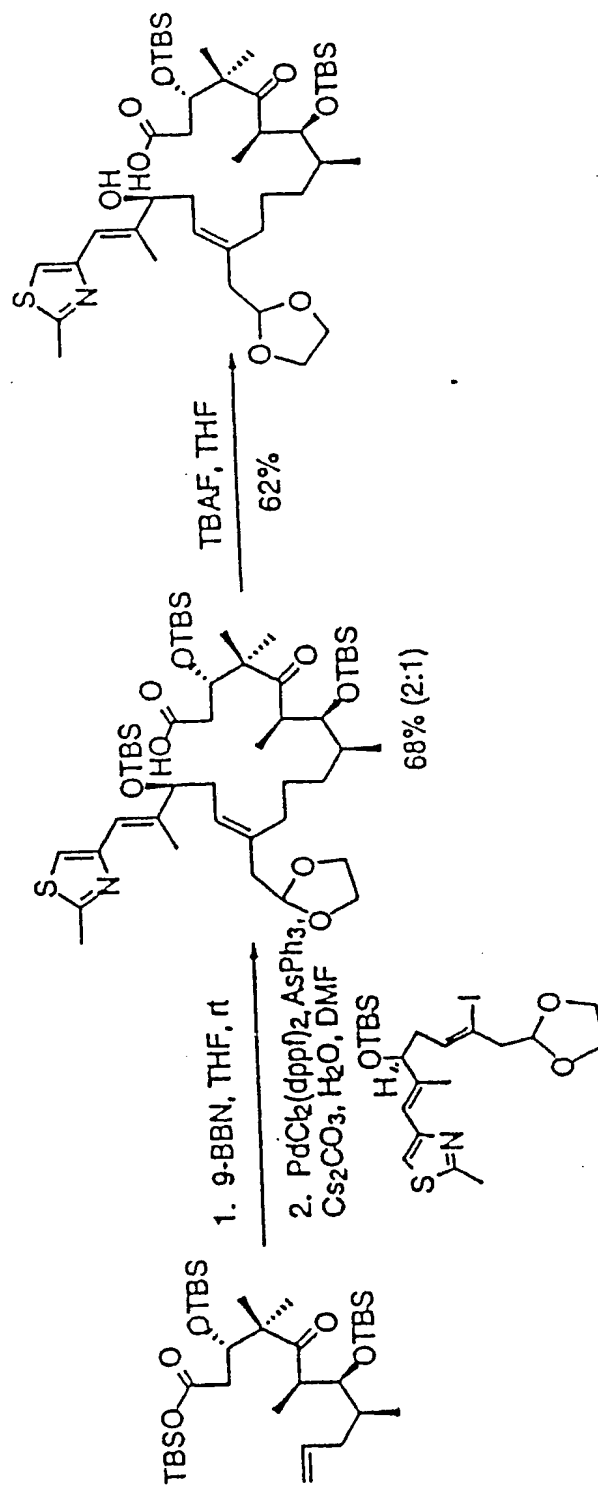
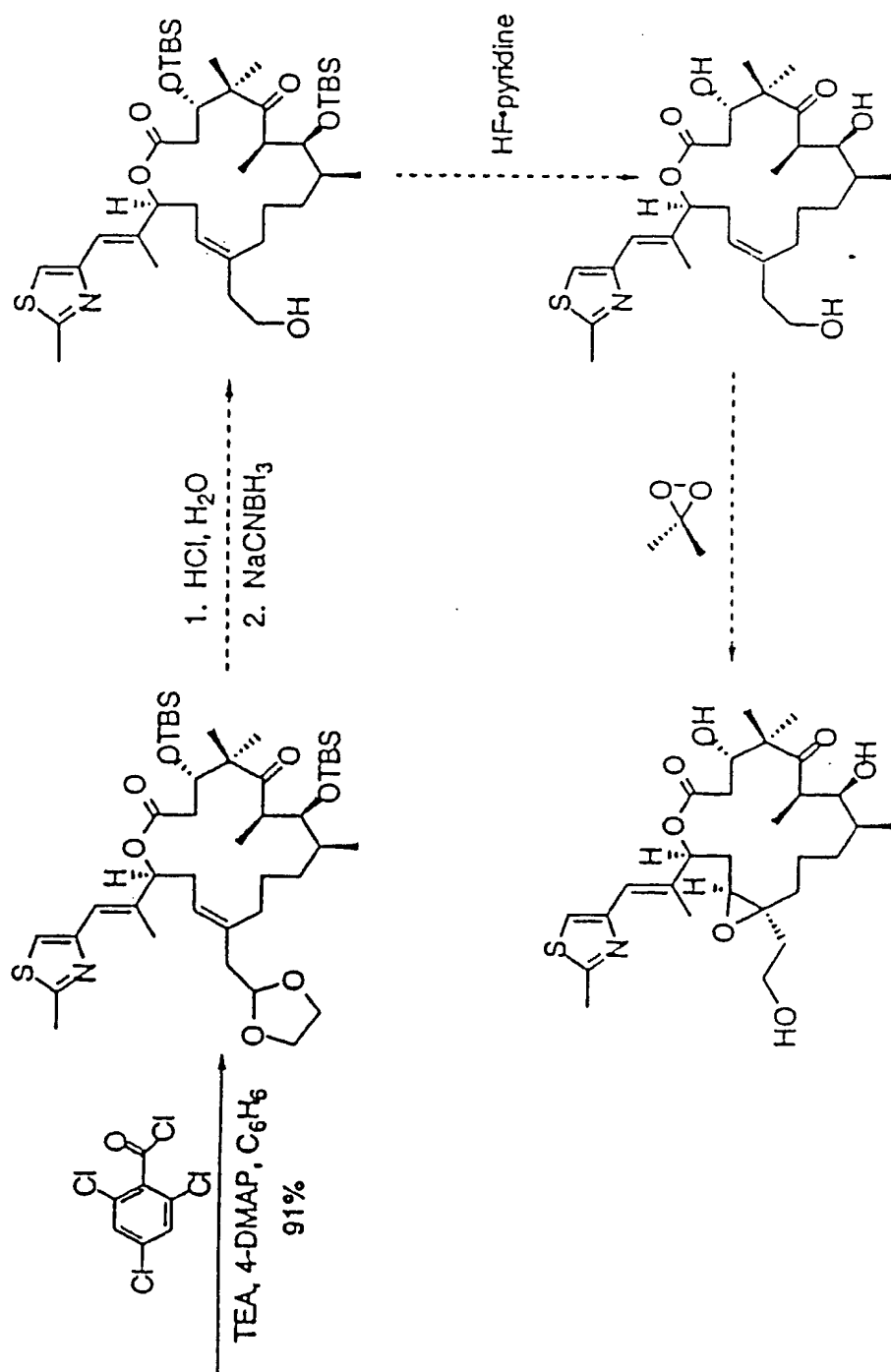


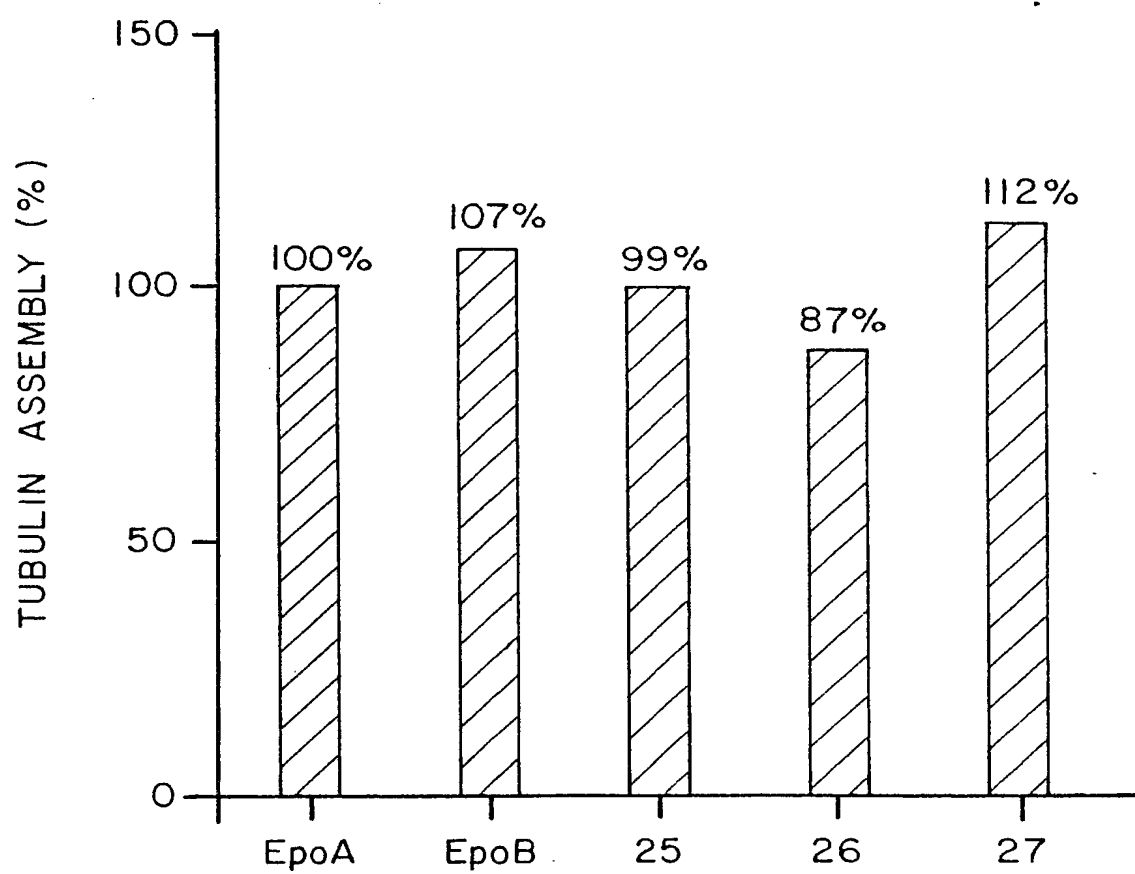
FIG. 27C





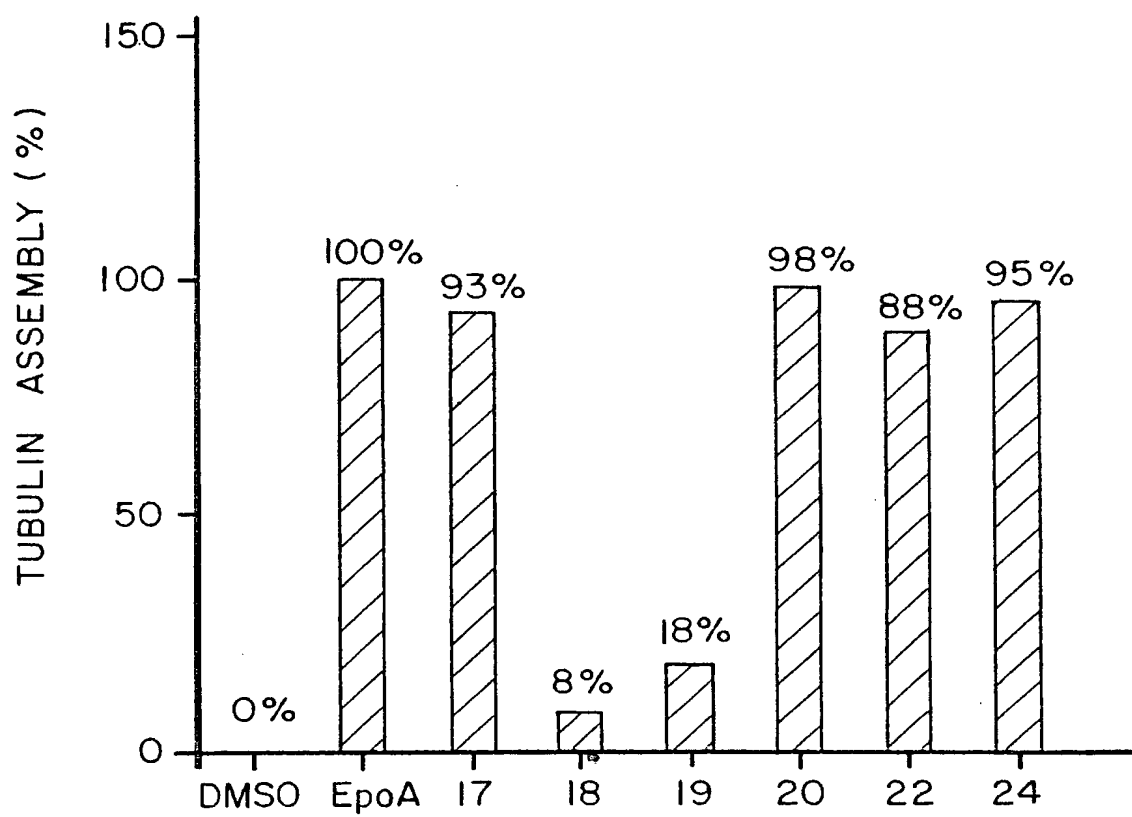
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FIG. 28A



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FIG. 28 B



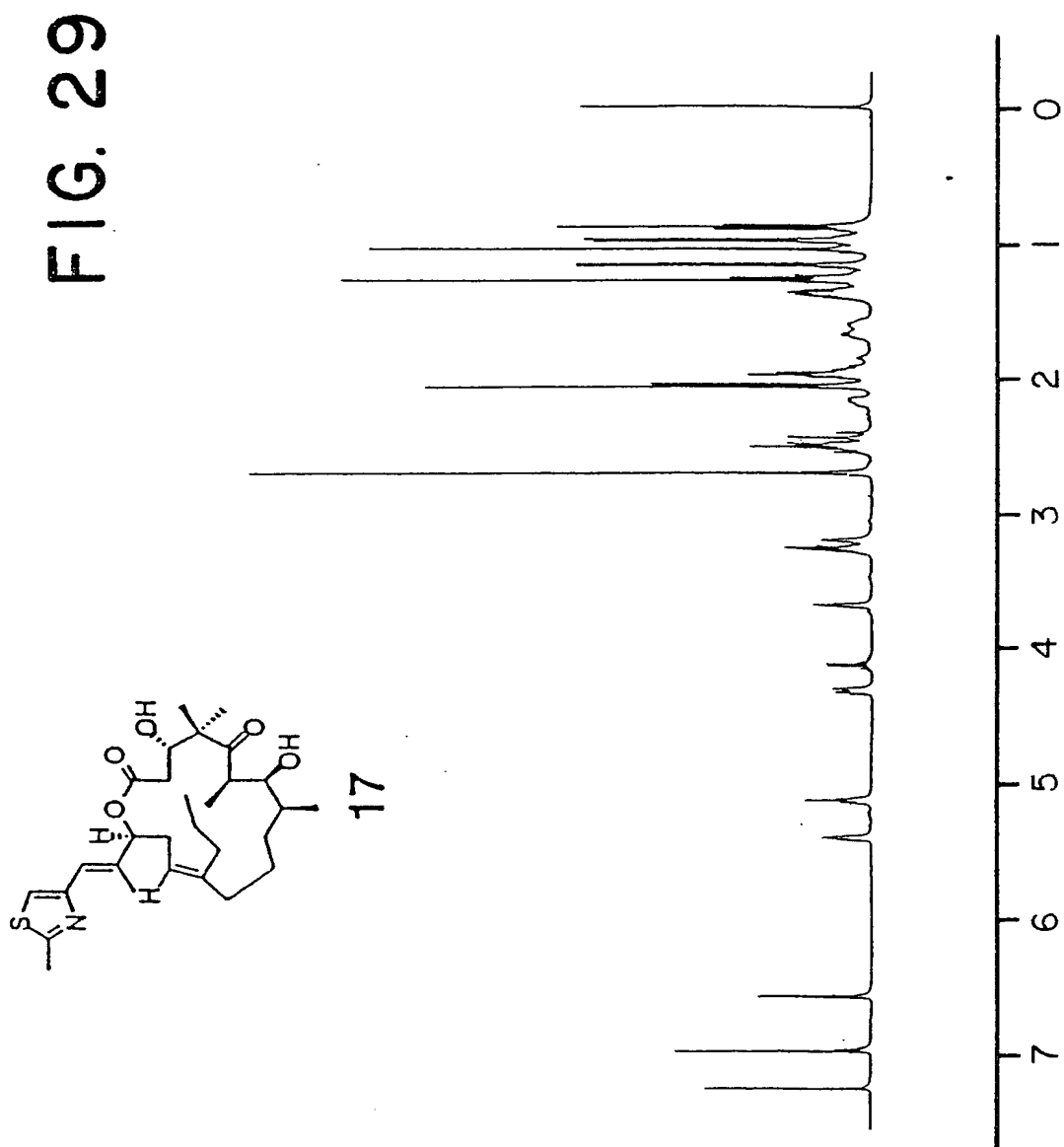
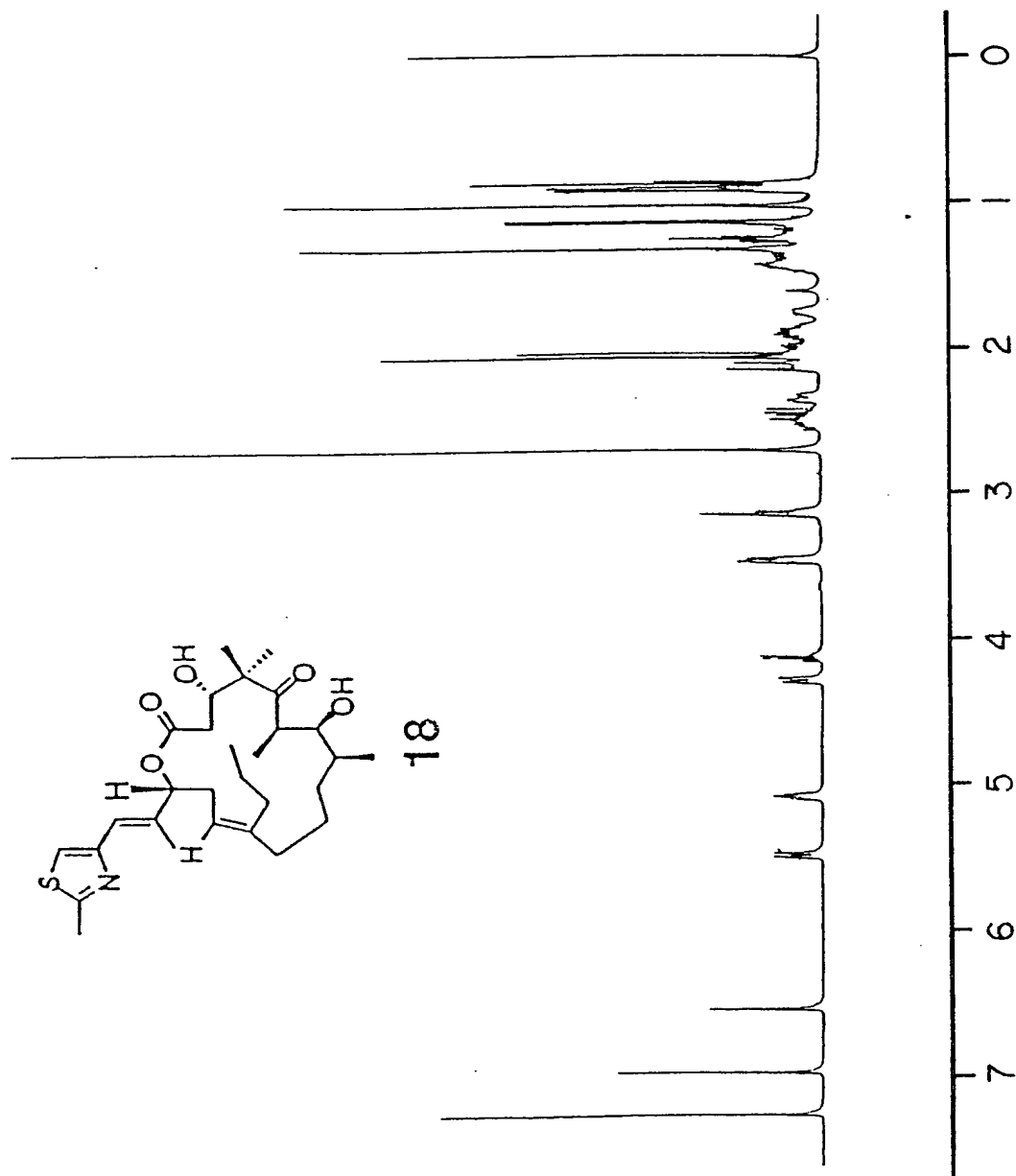
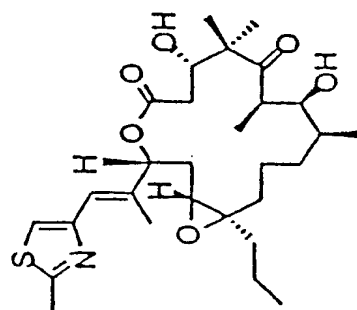


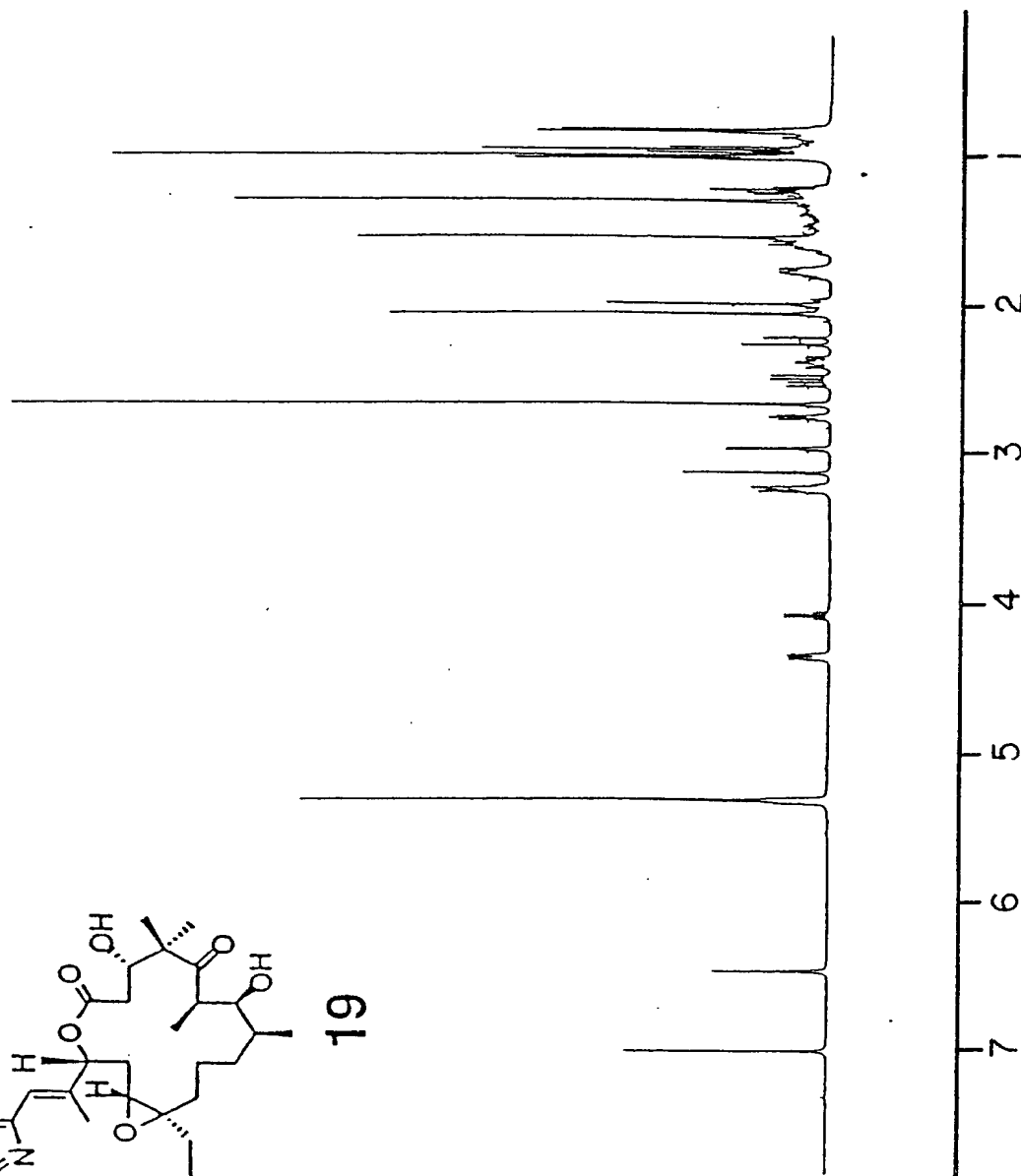
FIG. 30



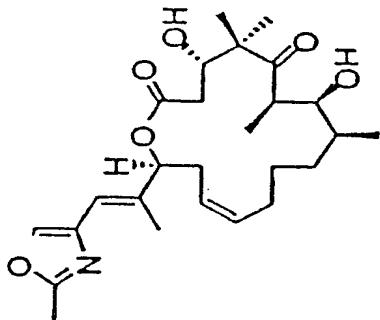
36



91



23  
G  
F



20

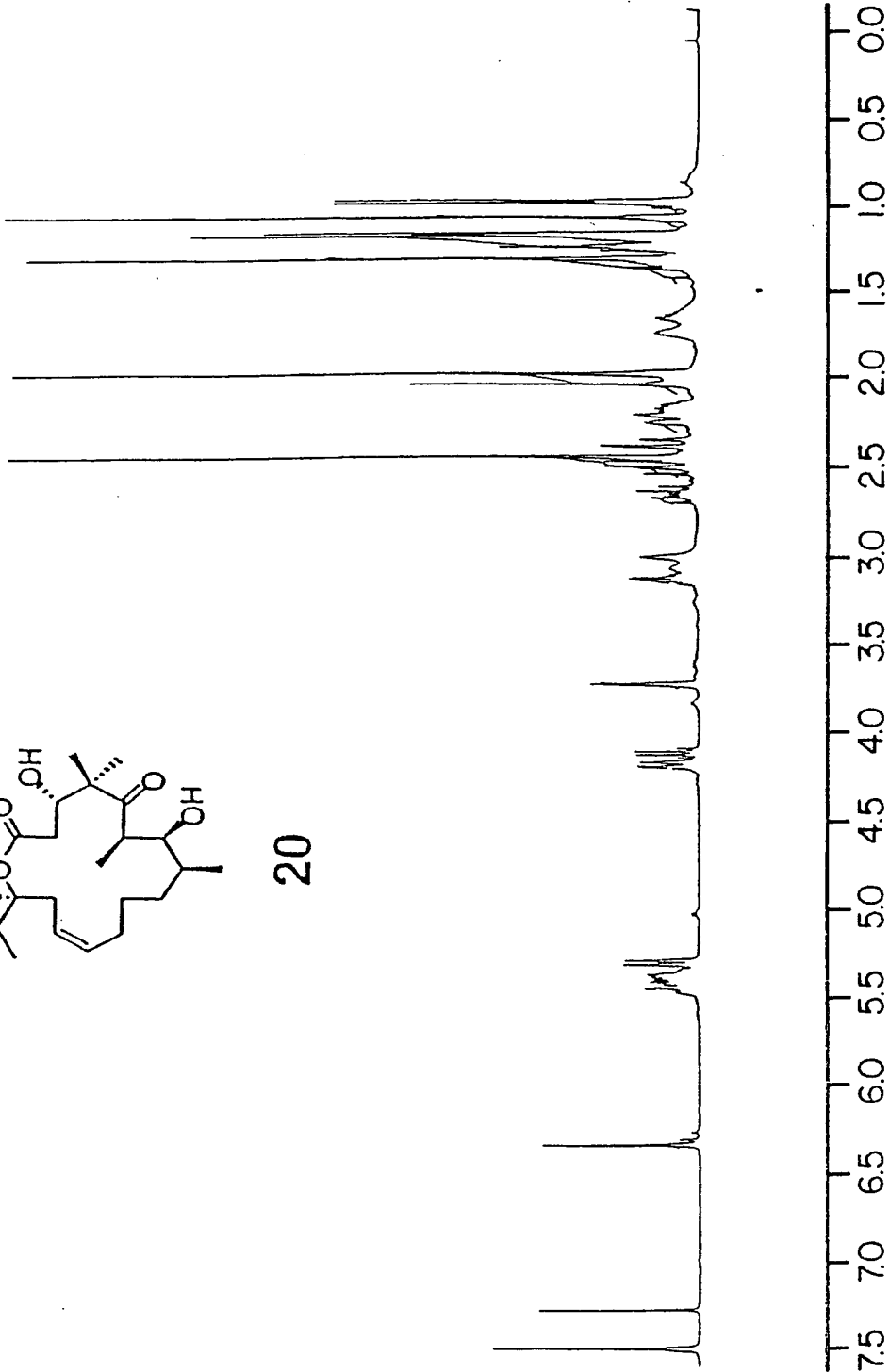


FIG. 33

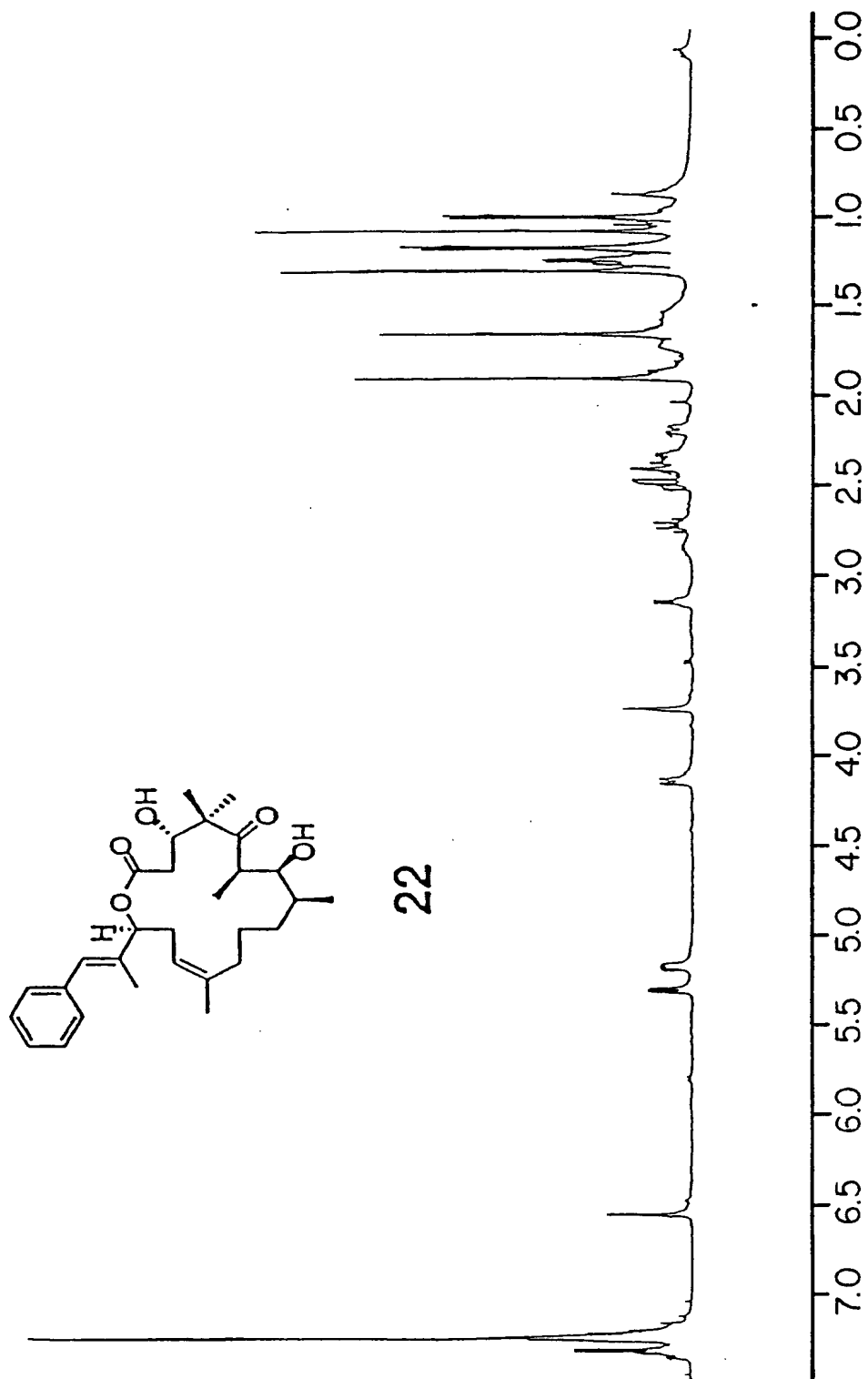


FIG. 34

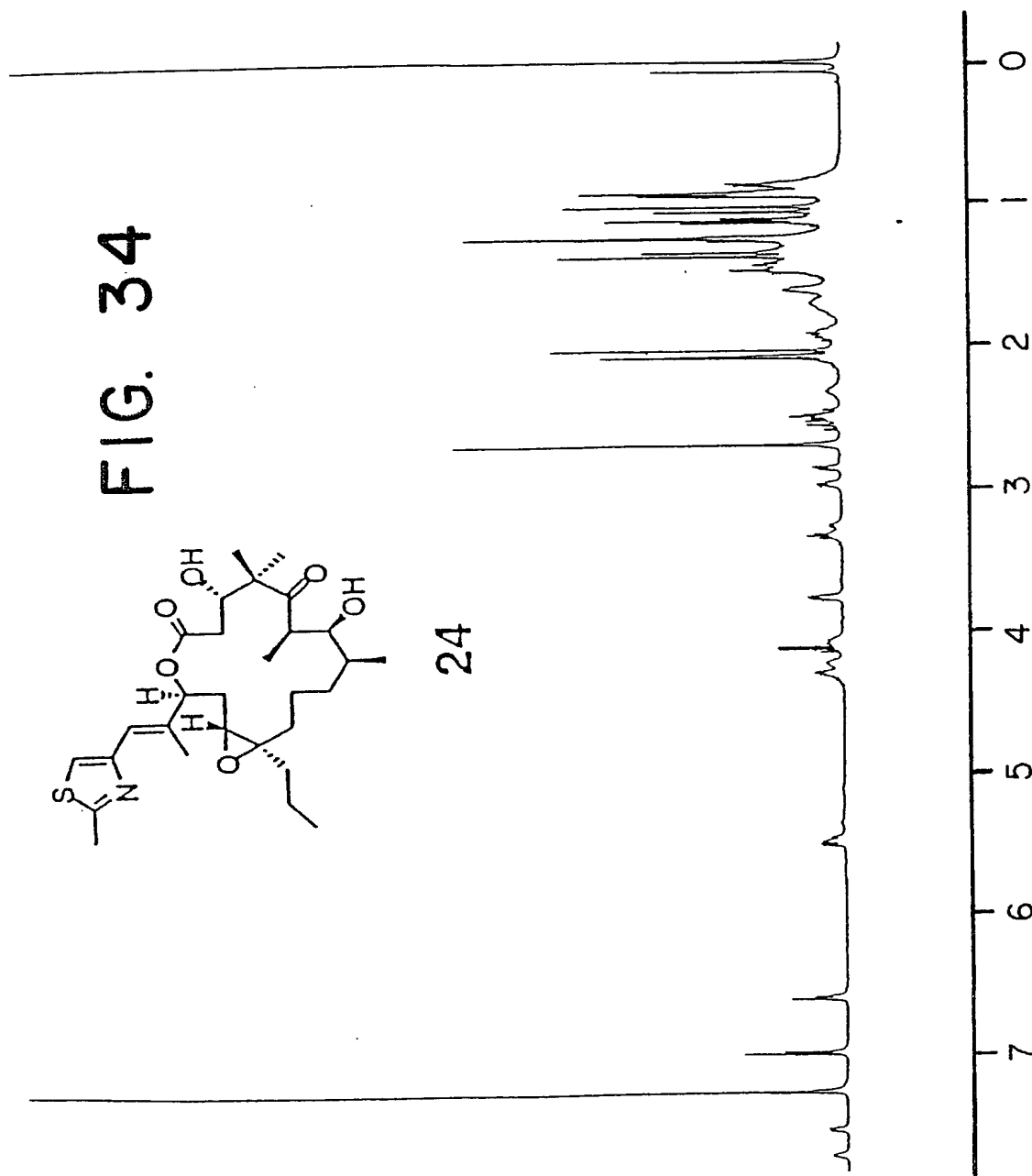
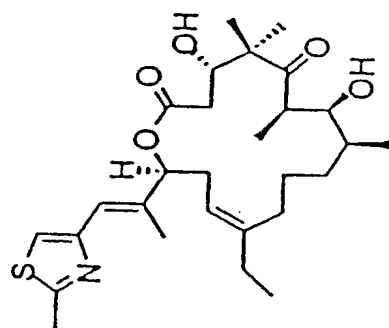


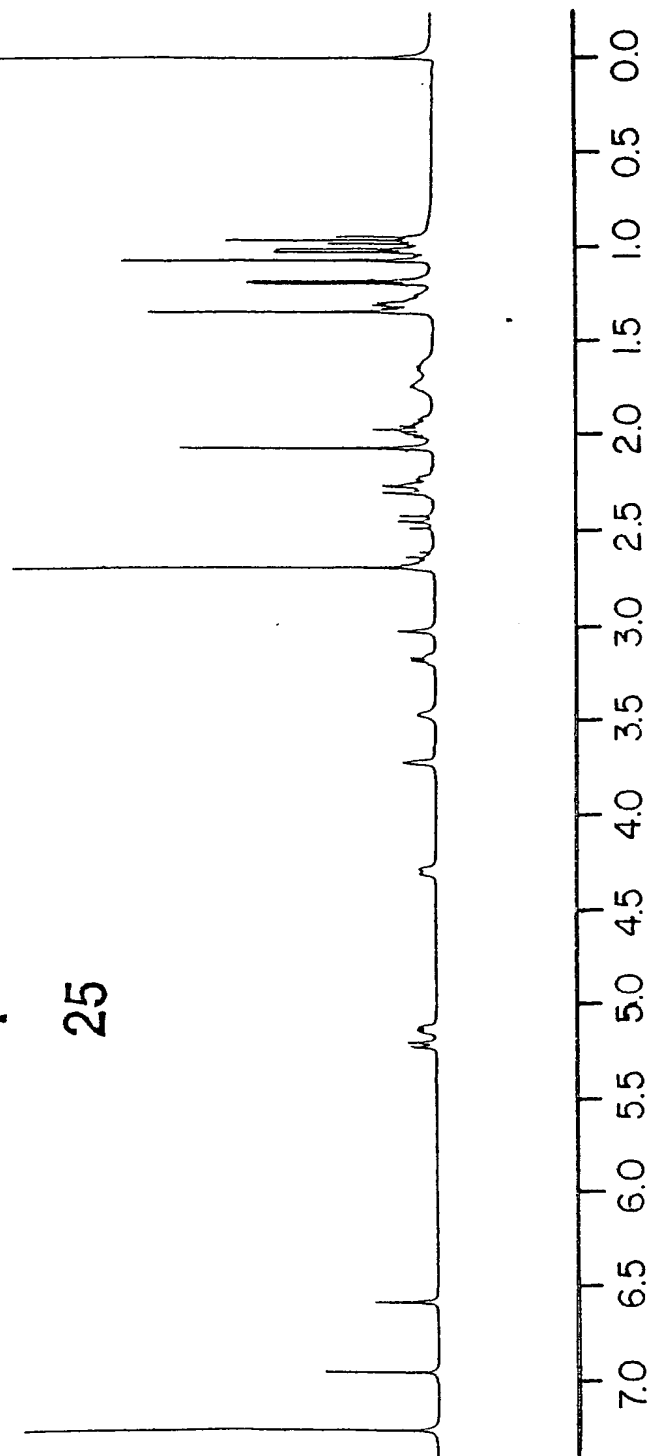


FIG. 35

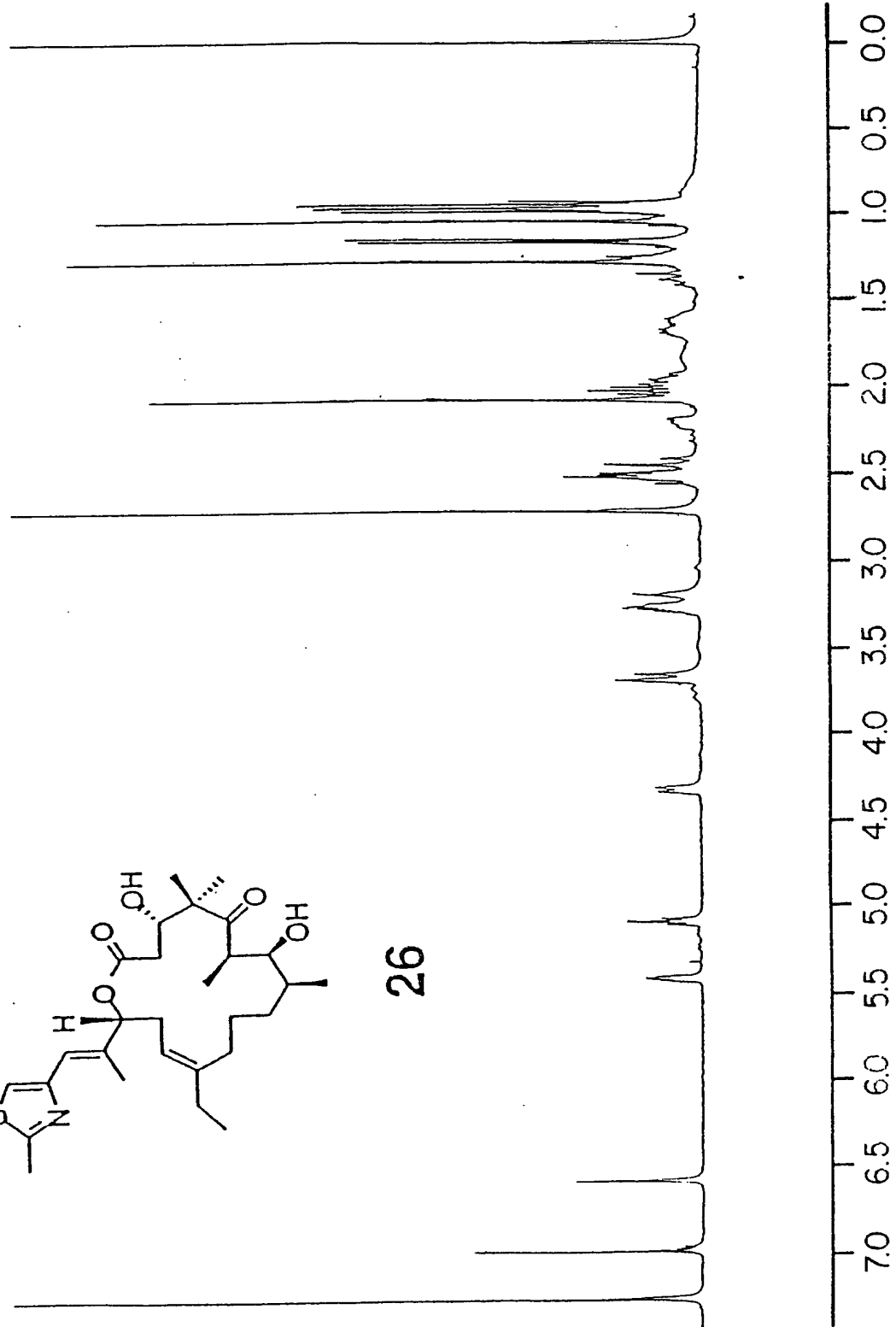


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The chemical structure shows a thiazole ring substituted with a methyl group and a side chain containing a carboxylic acid group. This side chain is connected to a complex polycyclic system that includes a ketone, multiple hydroxyl groups, and a cyclic ether. Stereochemistry is indicated with wedges and dashes.

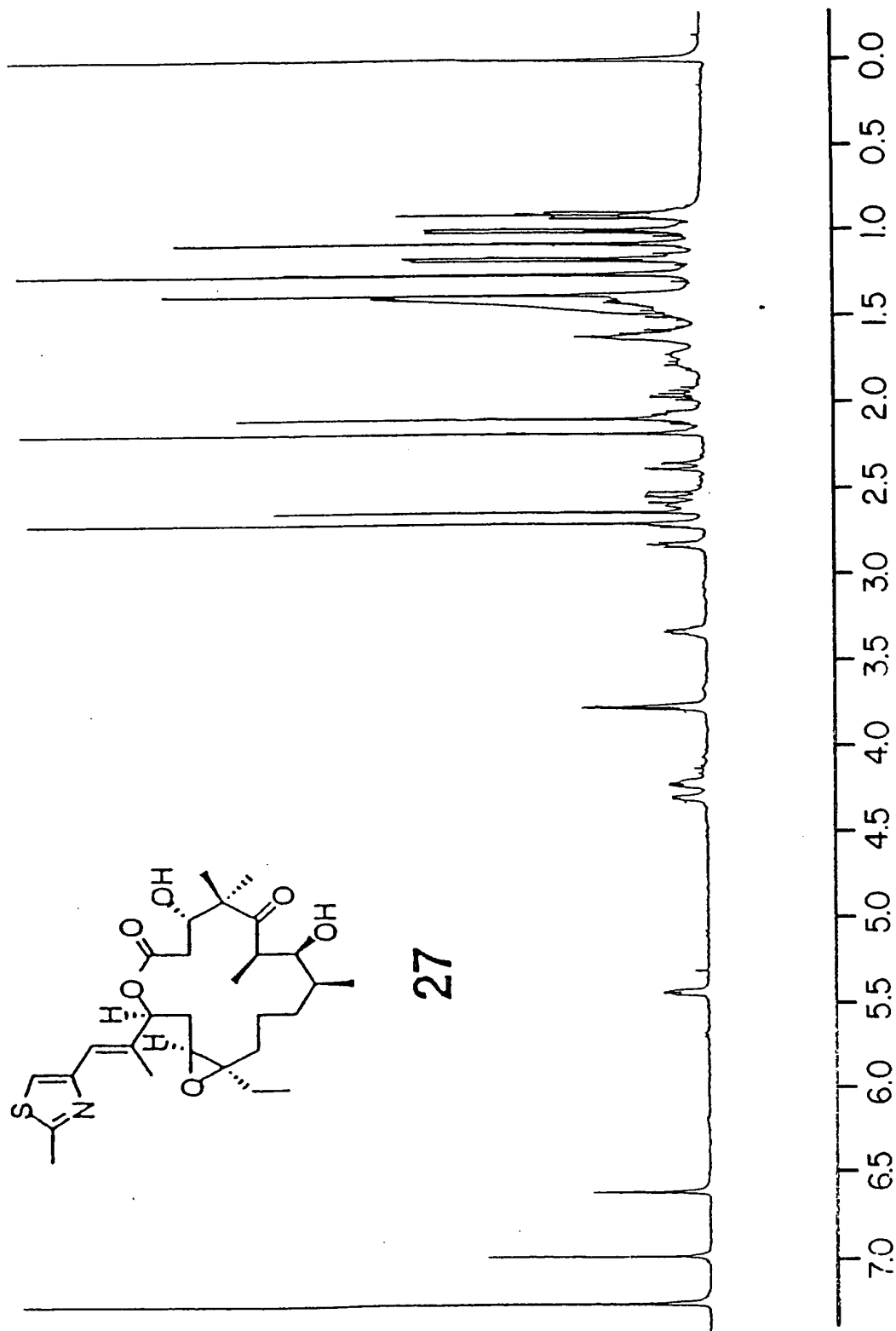


FIG. 38

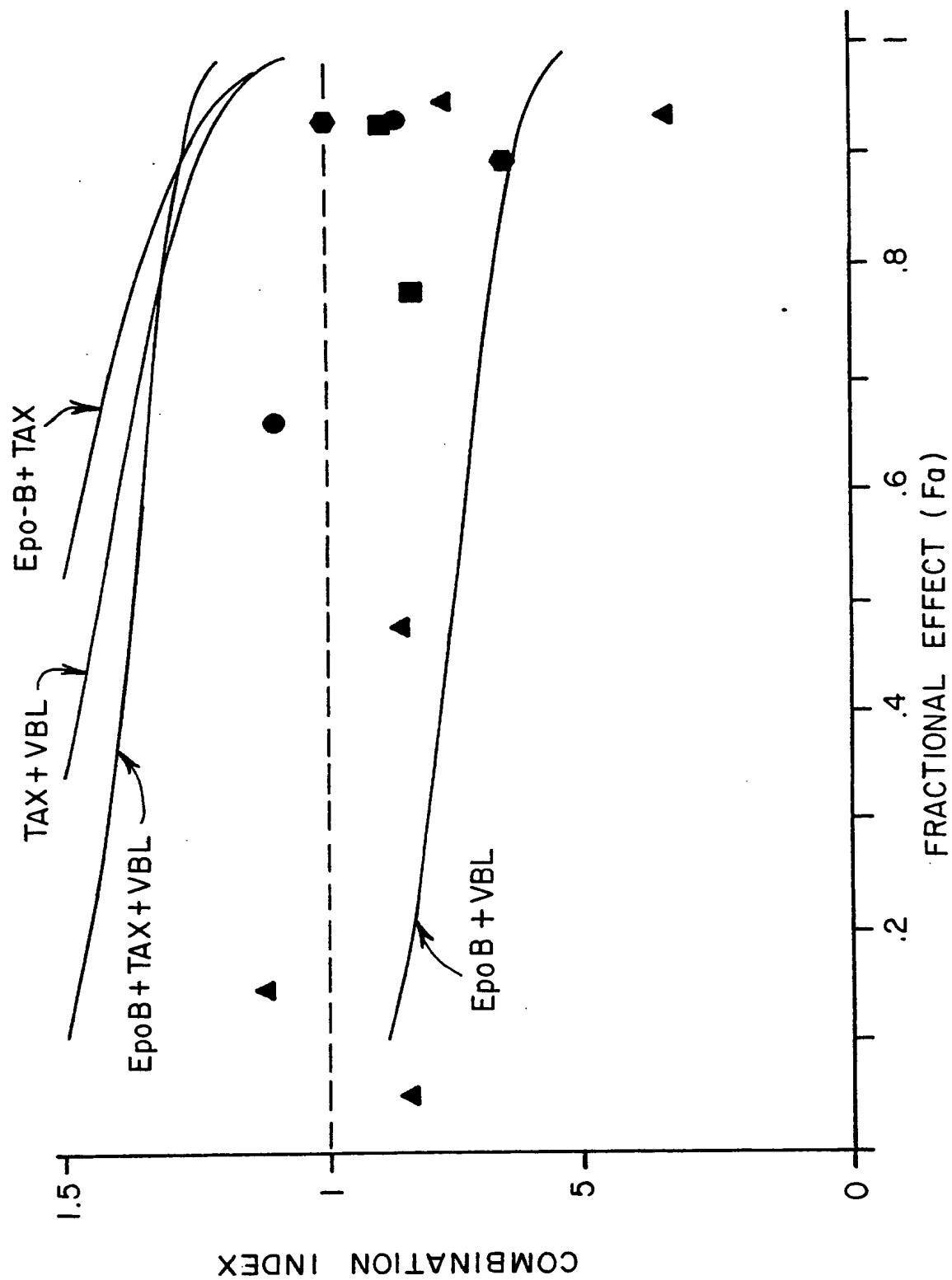
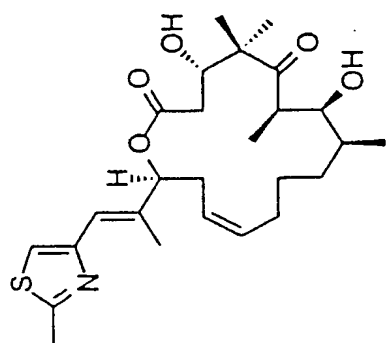
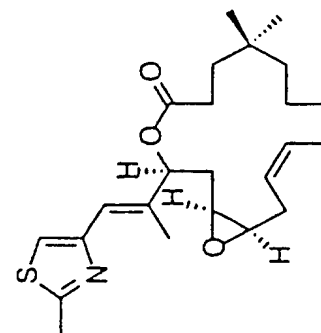


FIG. 39A



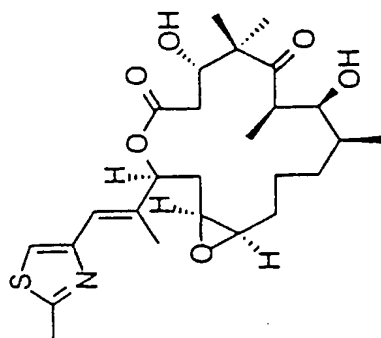
desoxyepothilone A

**1**  
(0.022)  
[0.012]

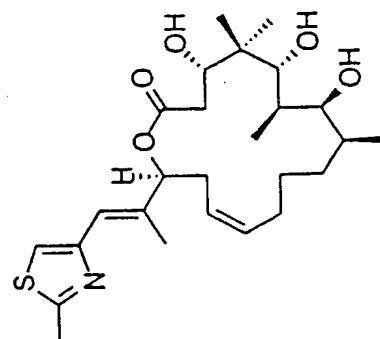


epothilone A

(0.0027)  
[0.020]



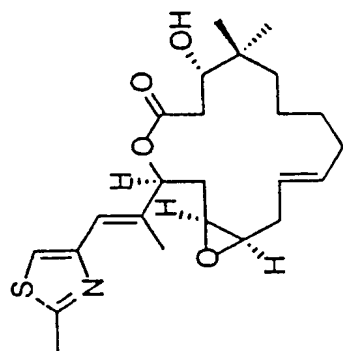
**3**  
(271.1)  
[22.4]



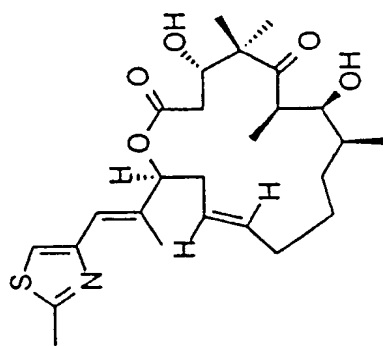
**2**  
(14.23)  
[6.28]

**4**  
(2.12)  
[43.0]

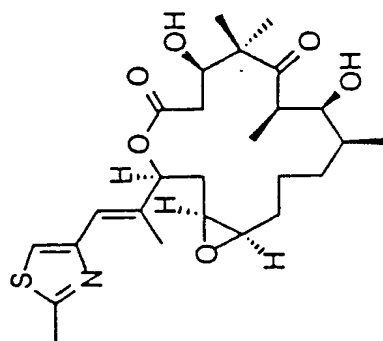
FIG. 39B



**7**  
(7.36)  
[9.82]

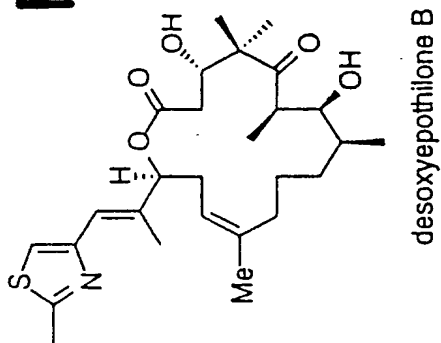


**6**  
(0.052)  
[0.035]

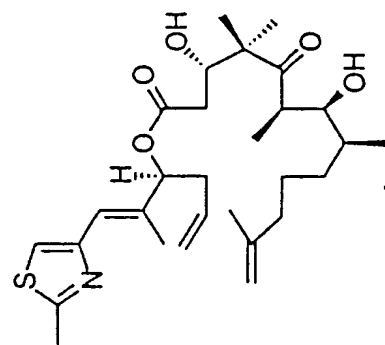


**5**  
(>20)  
[35.2]

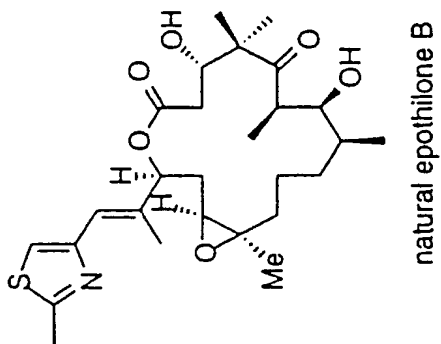
FIG. 40A



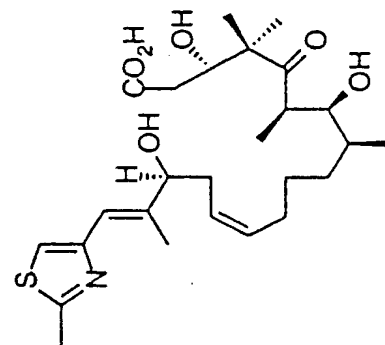
**10**  
(0.0095)  
[0.017]



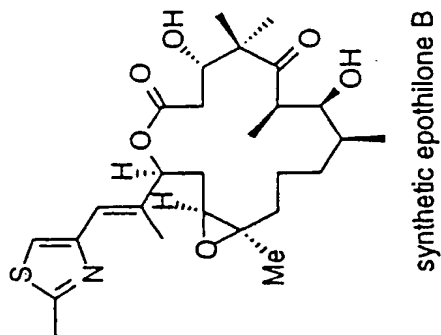
**13**  
(11.53)  
[5.63]



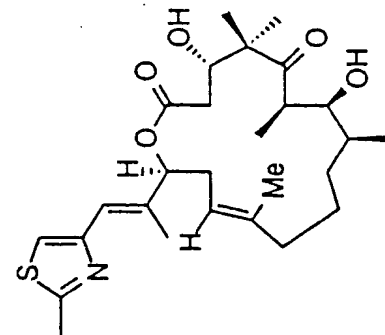
**9**  
(0.00017)  
[0.0012]



**12**  
(0.79)  
[>5]



**8**  
(0.00044)  
[0.0026]



**11**  
(0.090)  
[0.262]

FIG. 40B

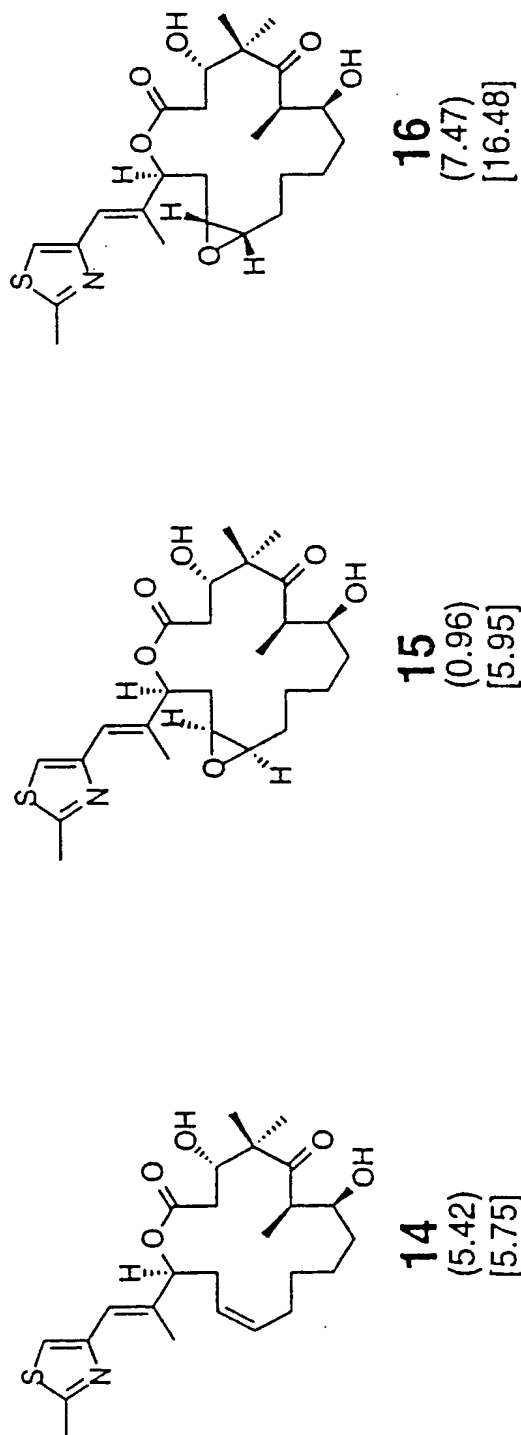




FIG. 41A

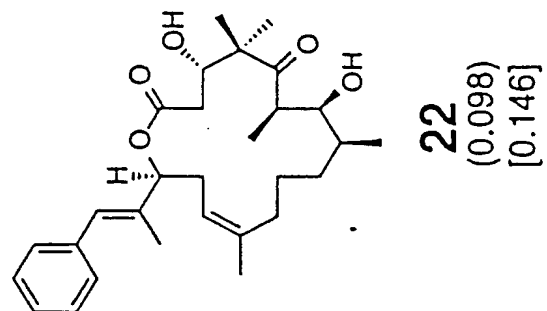
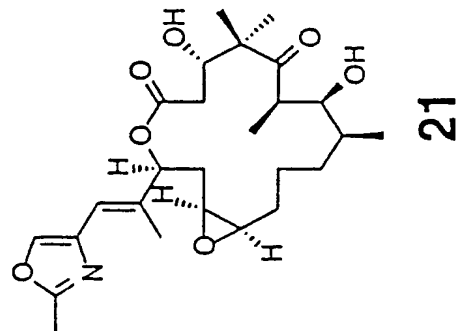
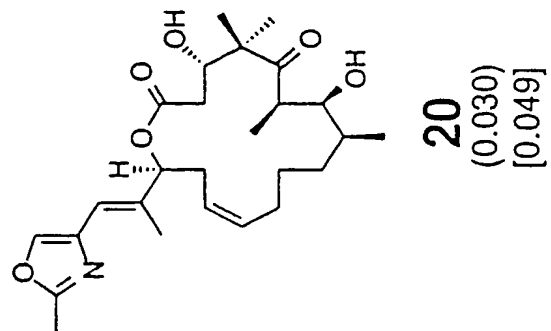
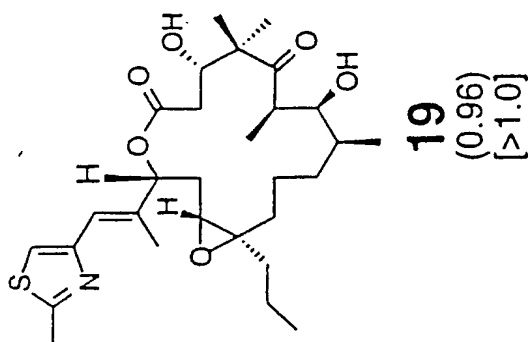
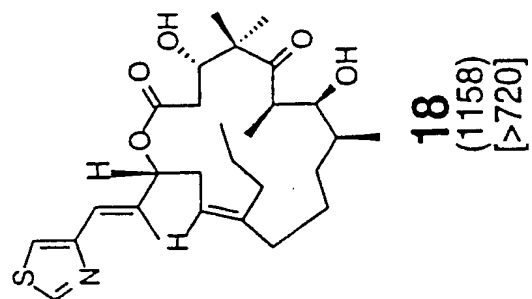
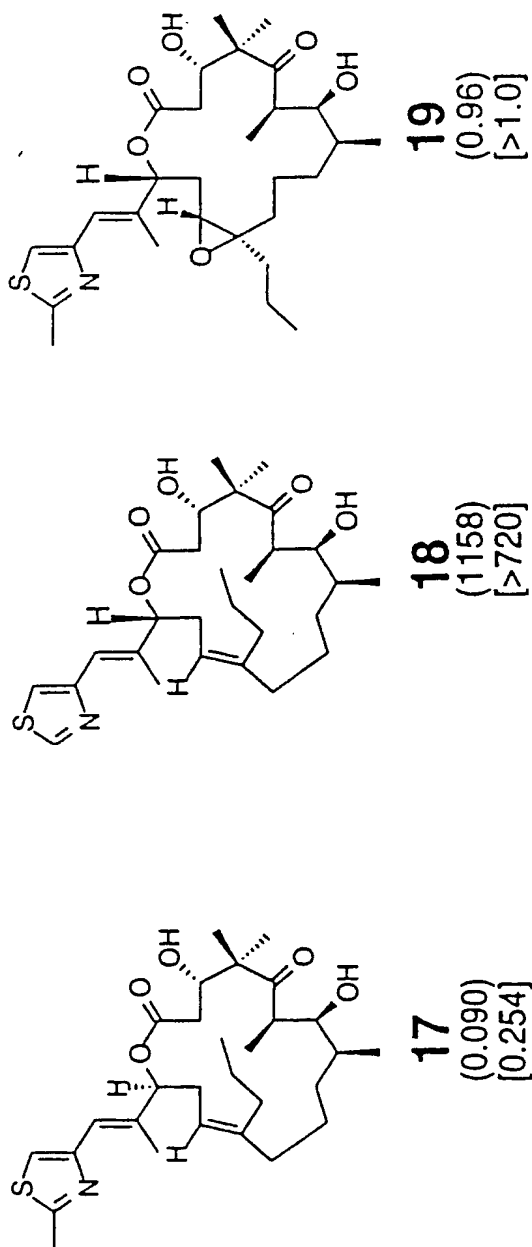
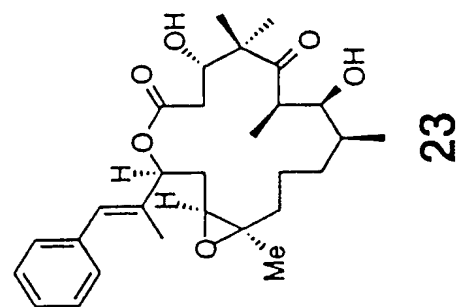
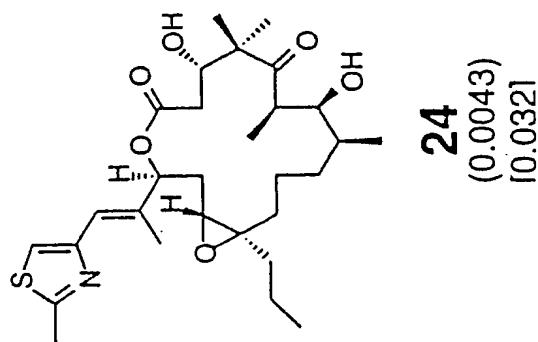


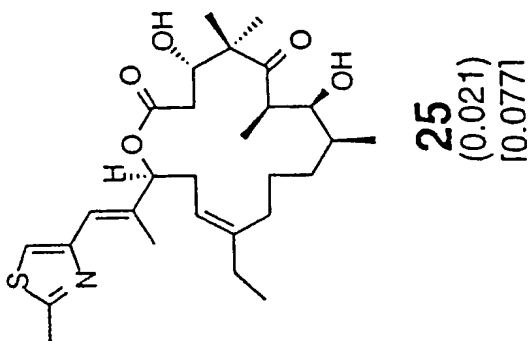
FIG. 41B



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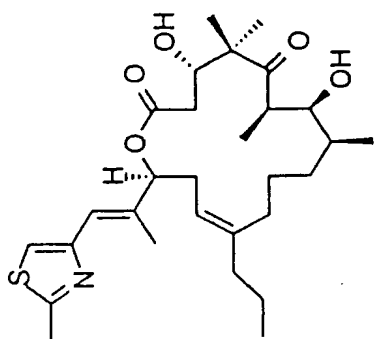
24

(0.0043)  
[0.032]

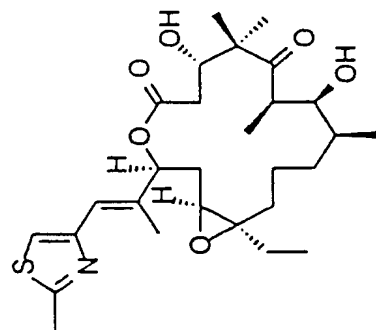
25

(0.021)  
[0.077]

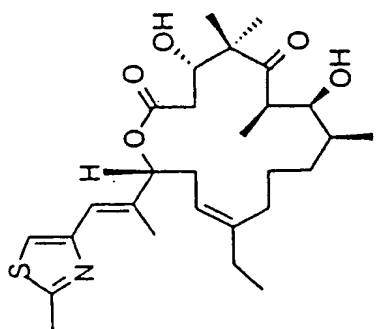
FIG. 42A



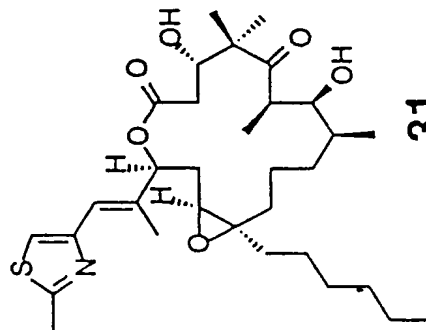
**27**  
(0.0010)  
[0.0072]



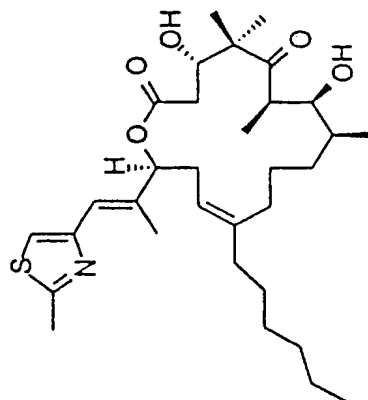
**28**  
(0.039)  
[0.067]



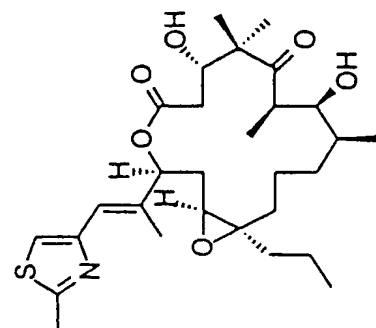
**29**  
(0.055)  
[0.197]



**30**  
(0.027)  
[0.049]



**31**  
(0.044)  
[0.108]



**32**  
(0.0038)  
[0.0064]

FIG. 42B

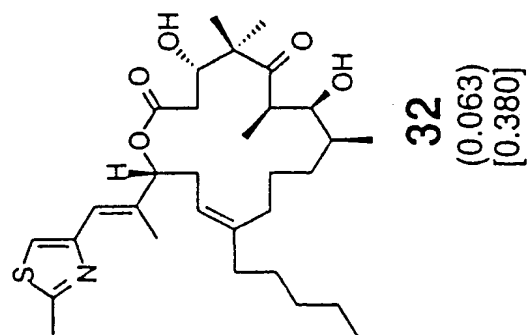
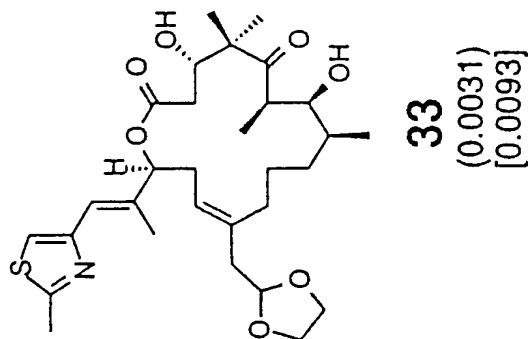
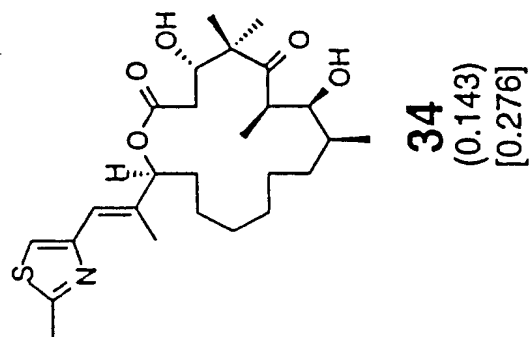


FIG. 42C

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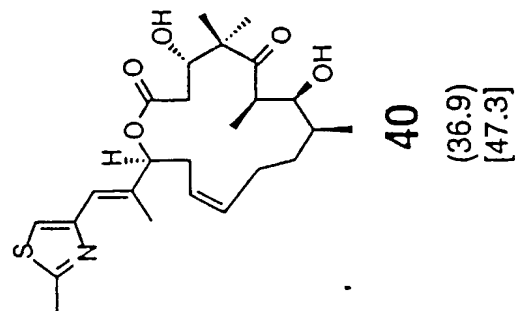
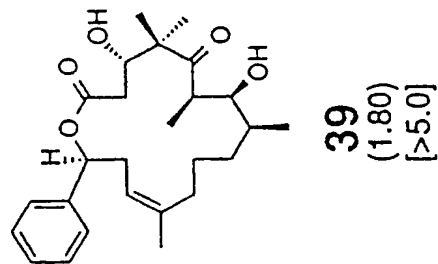
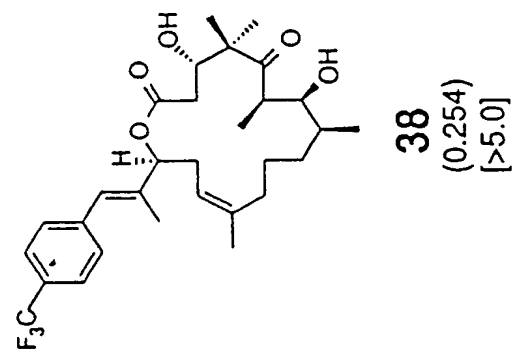
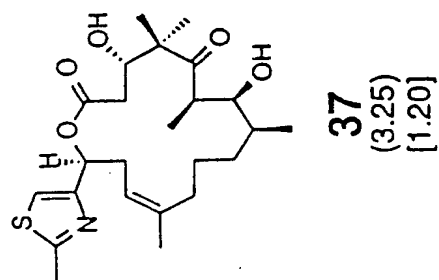
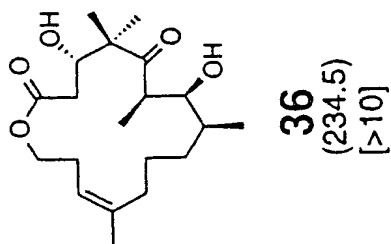
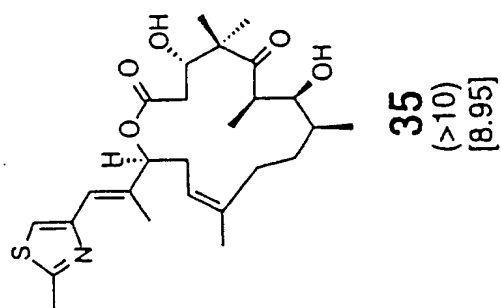


FIG. 42D

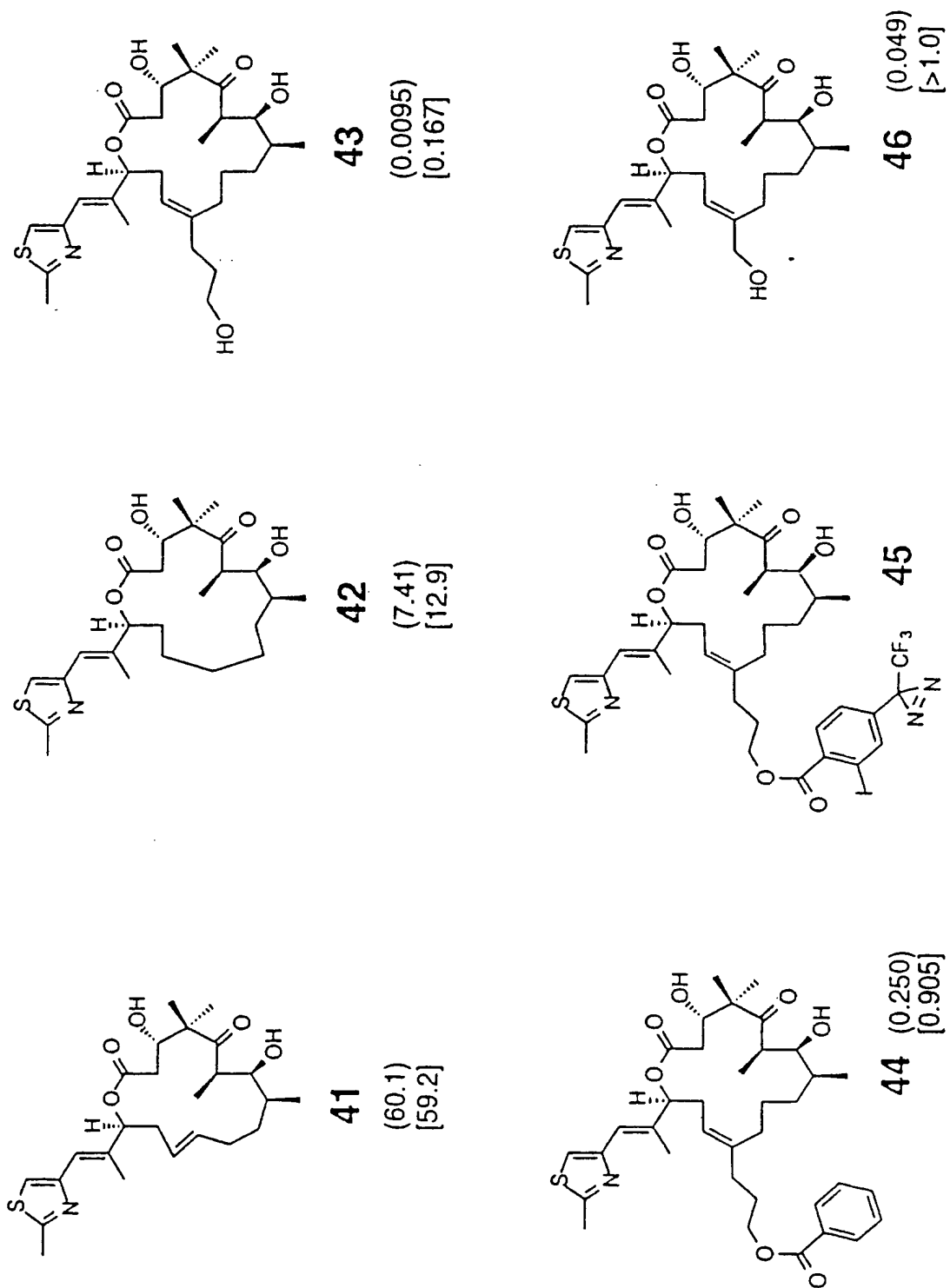
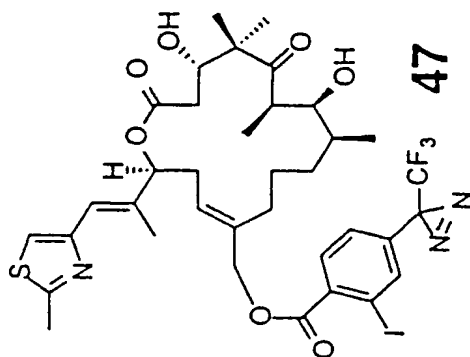
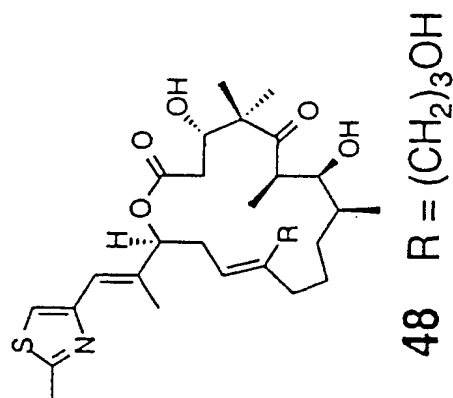
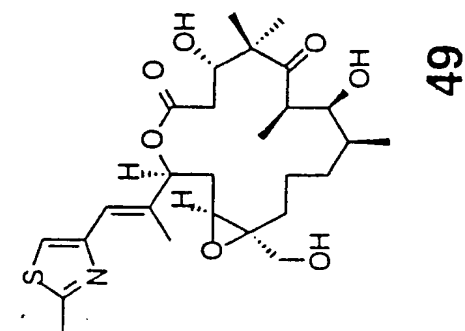
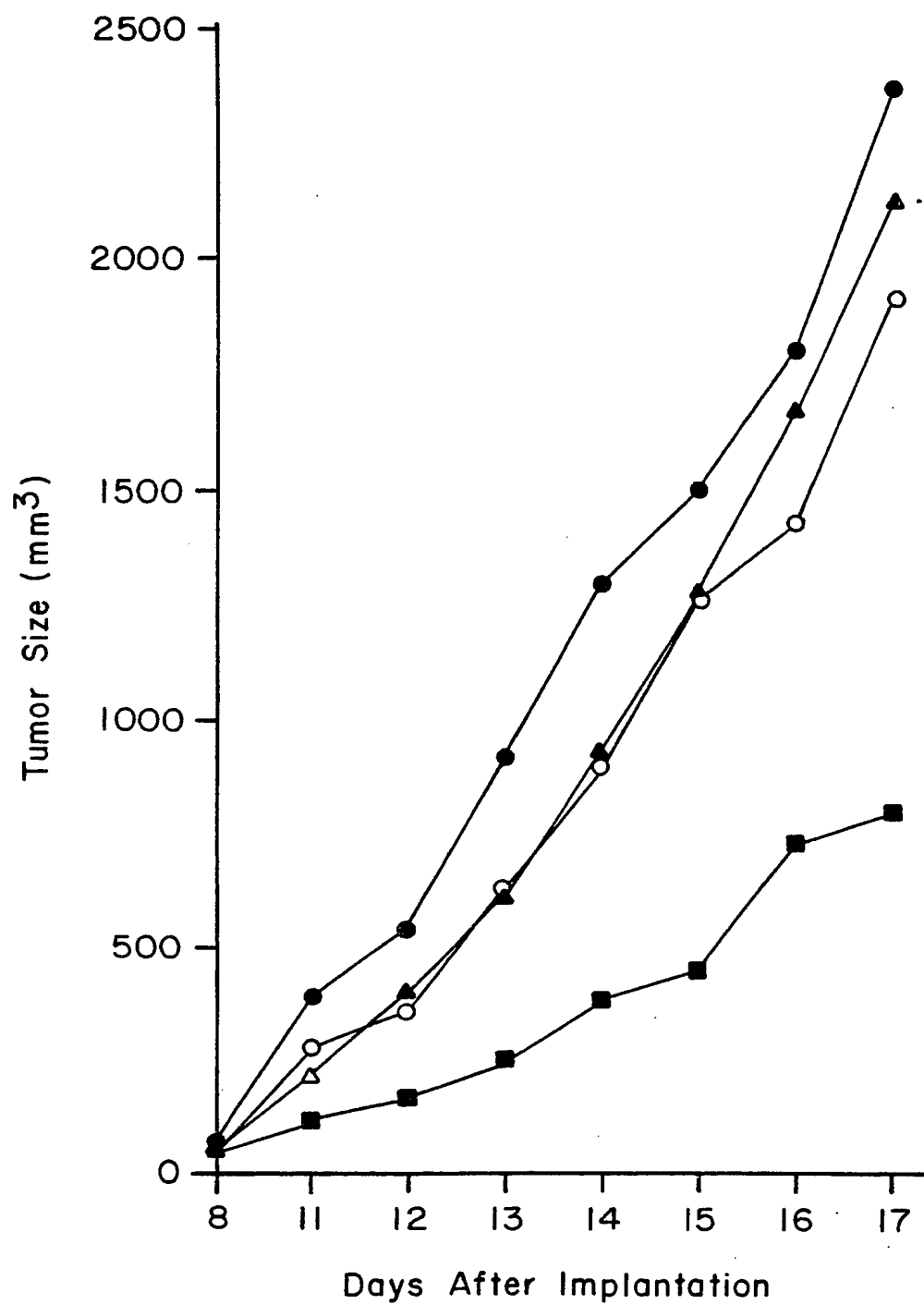


FIG. 42E



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FIG. 43A





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FIG. 43 B

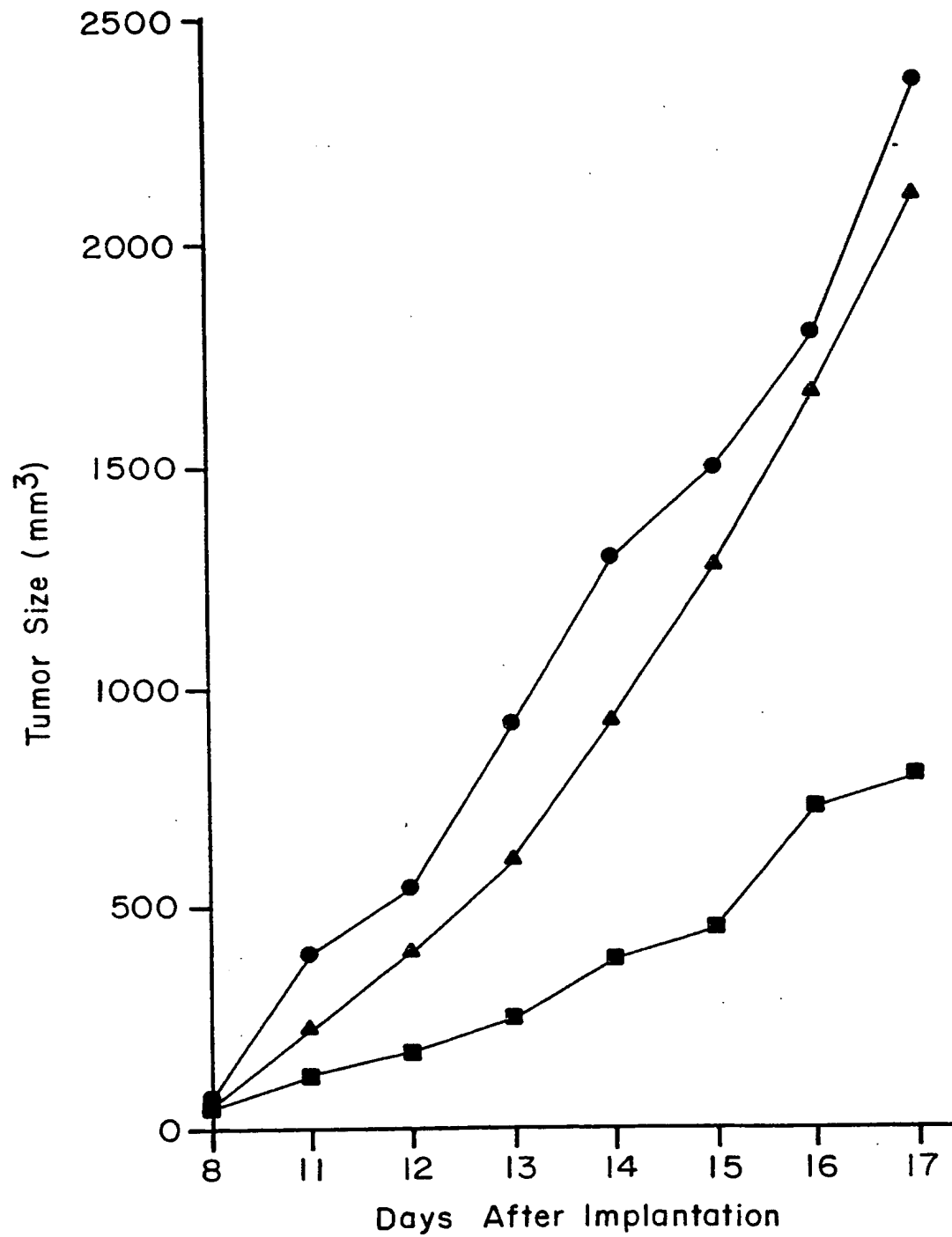


FIG. 44A

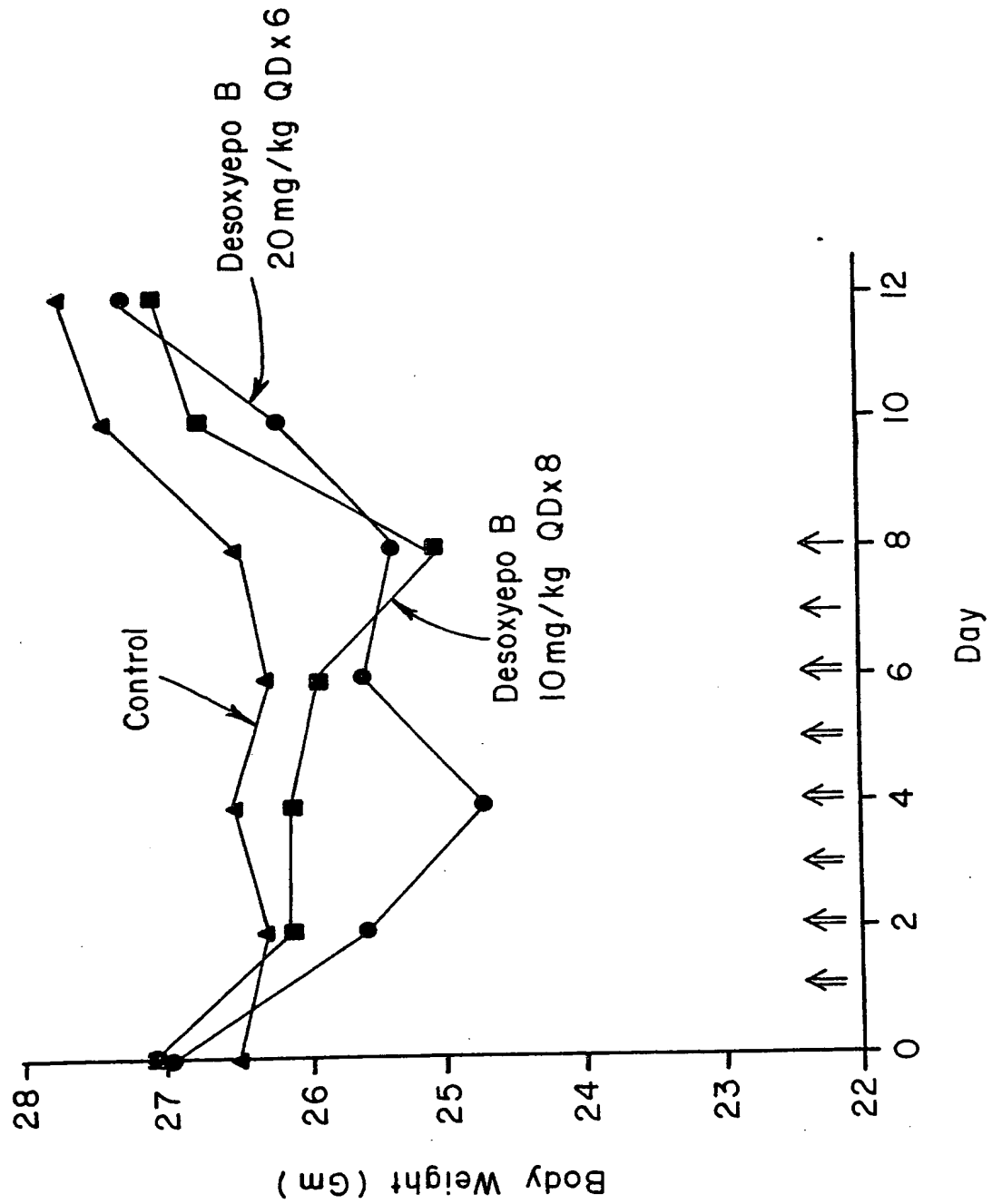
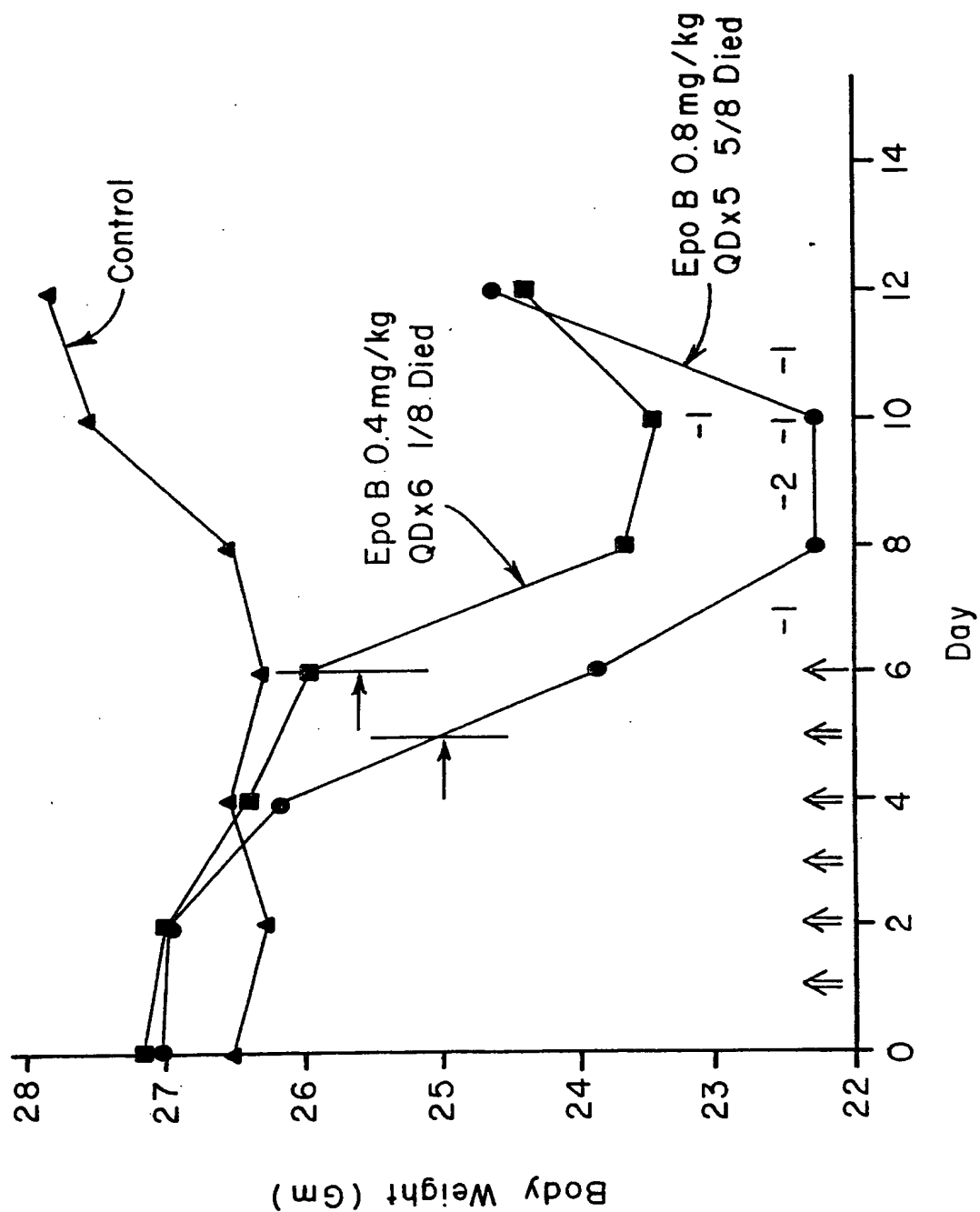
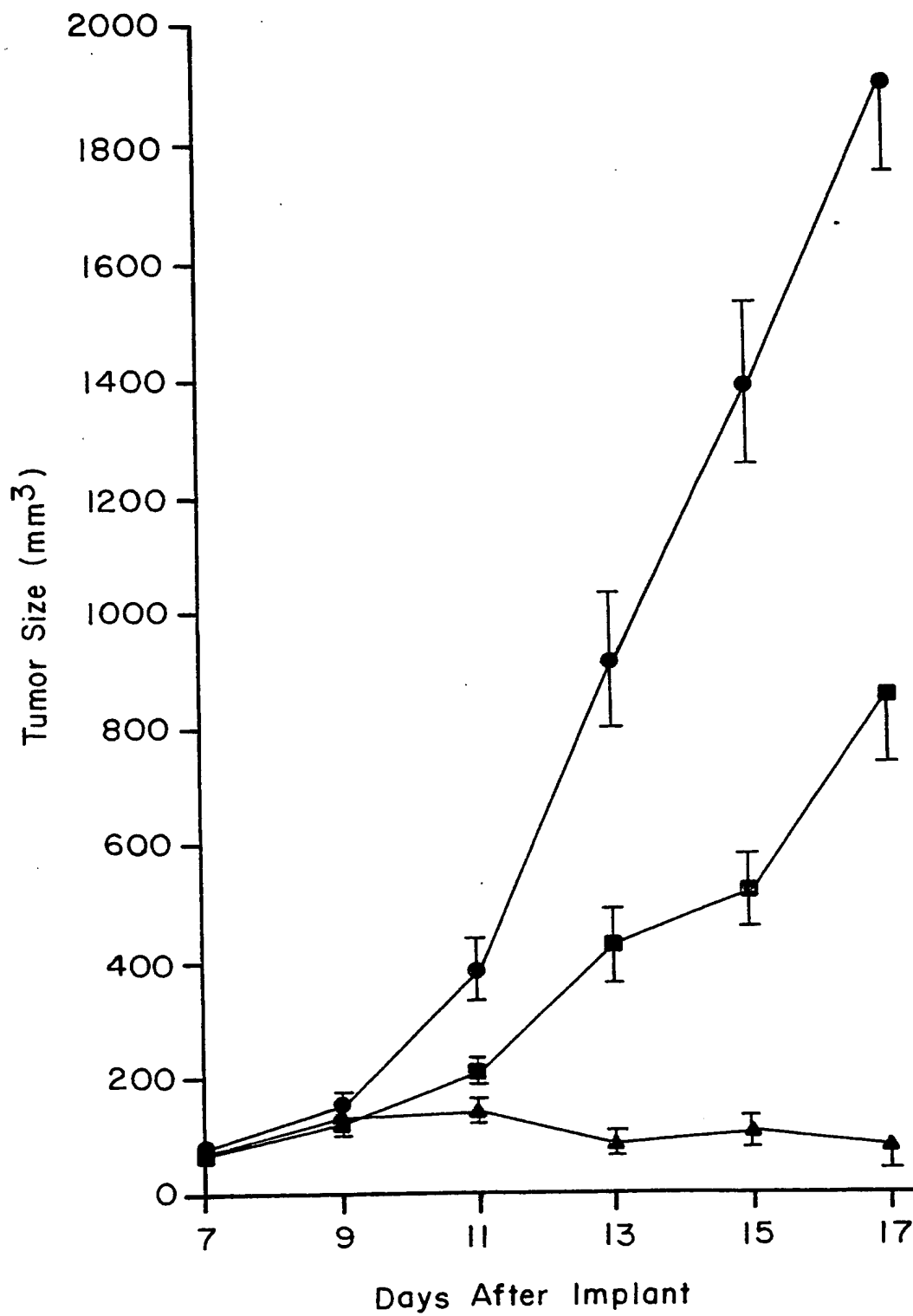


FIG. 44B



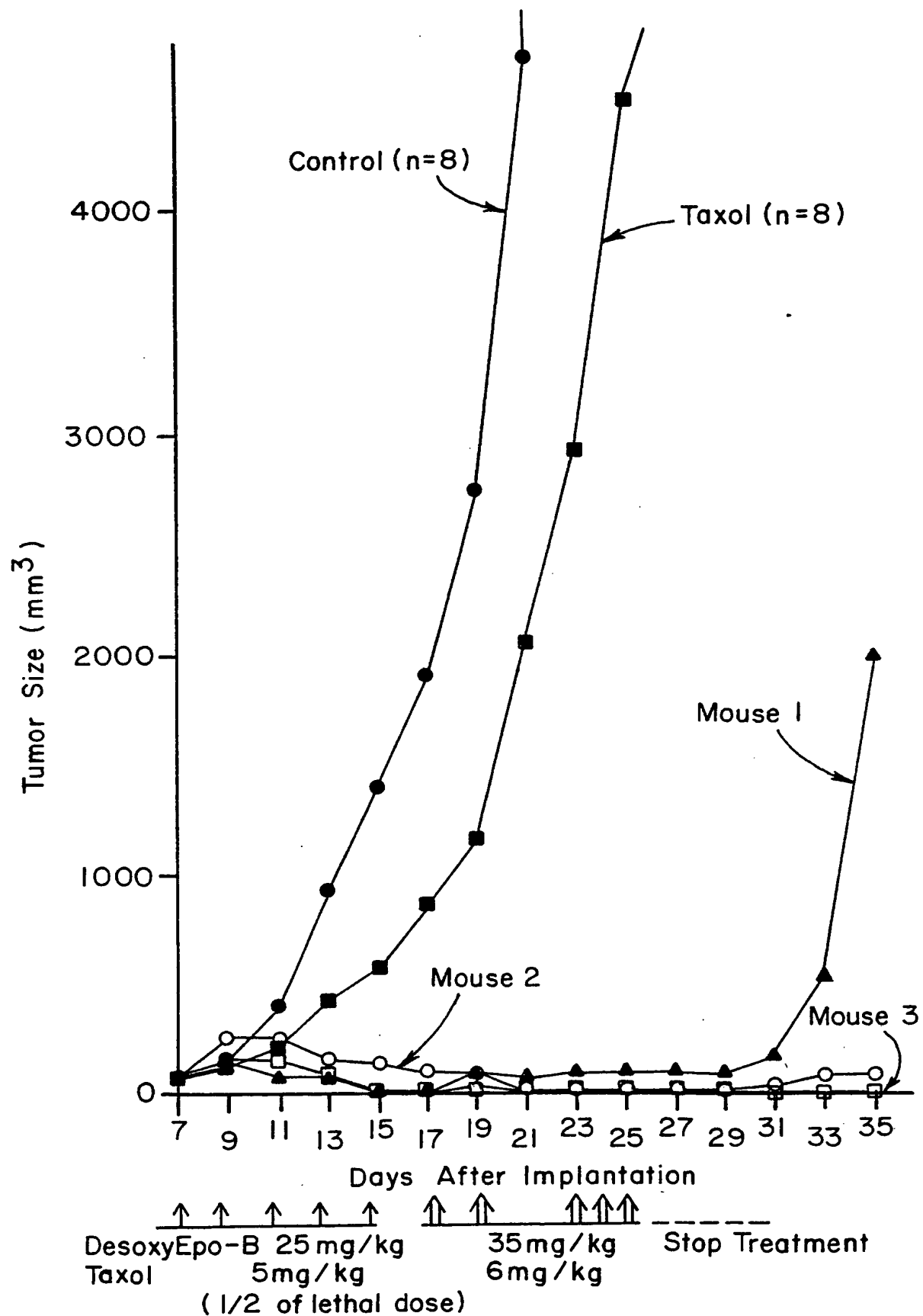
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FIG. 45A



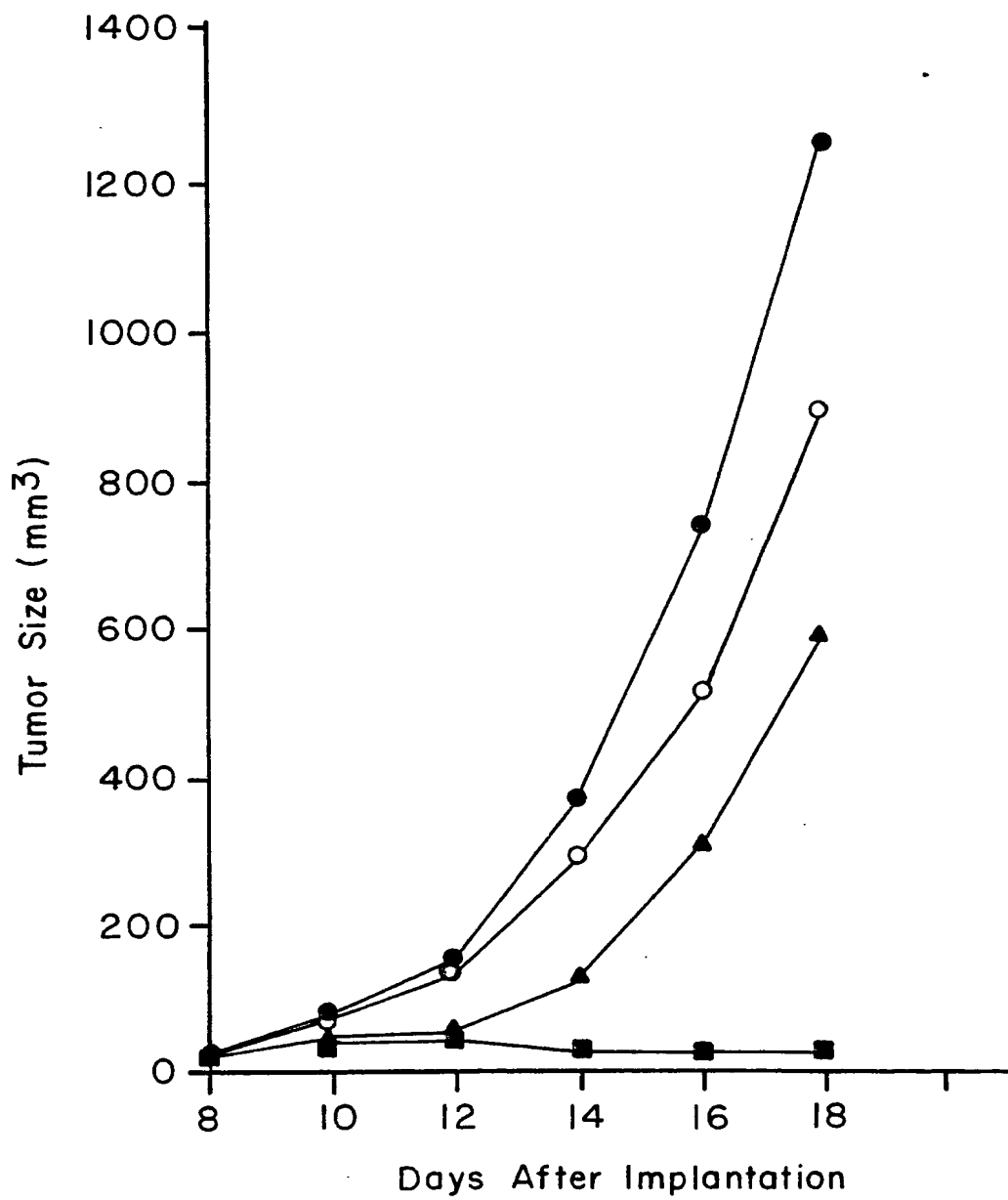
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FIG. 45 B



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FIG. 46



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FIG. 47

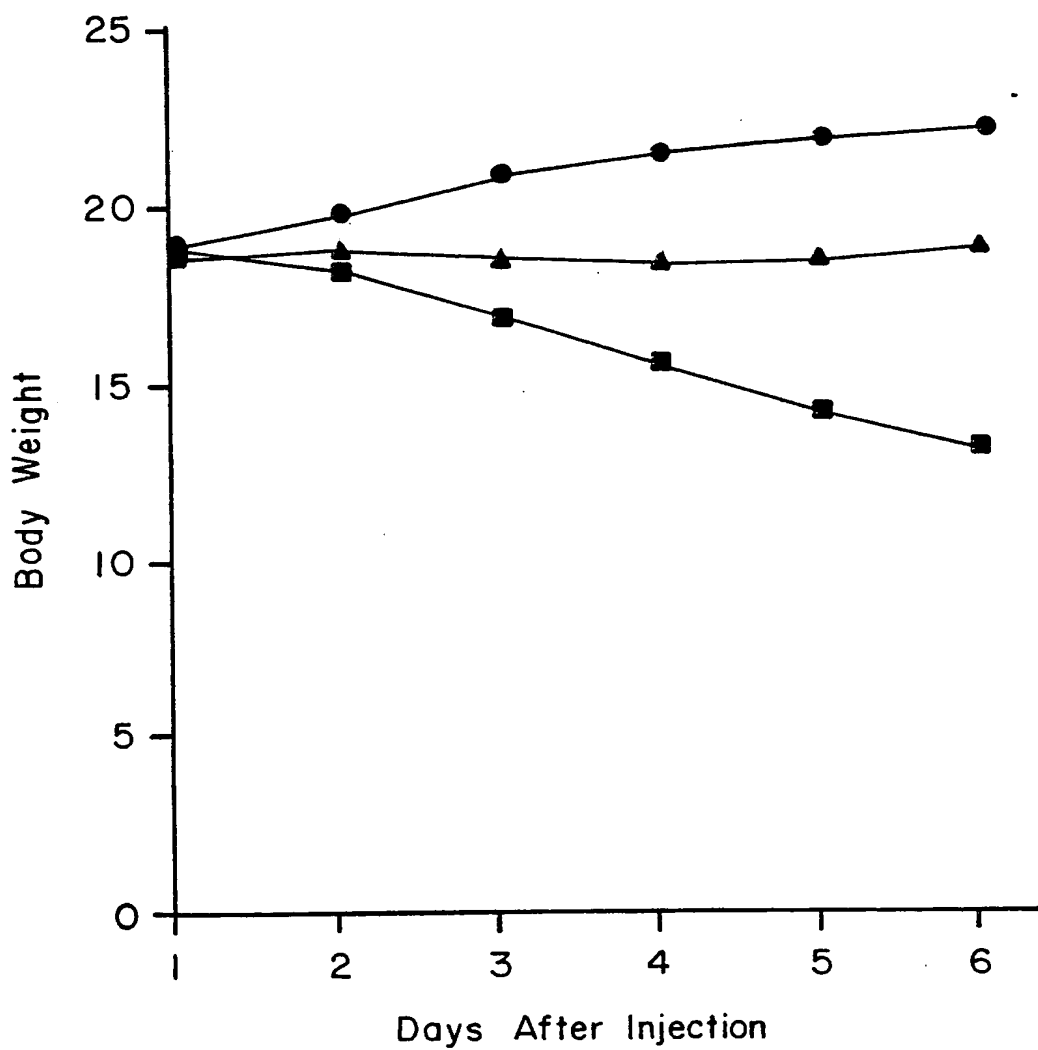


FIG. 48

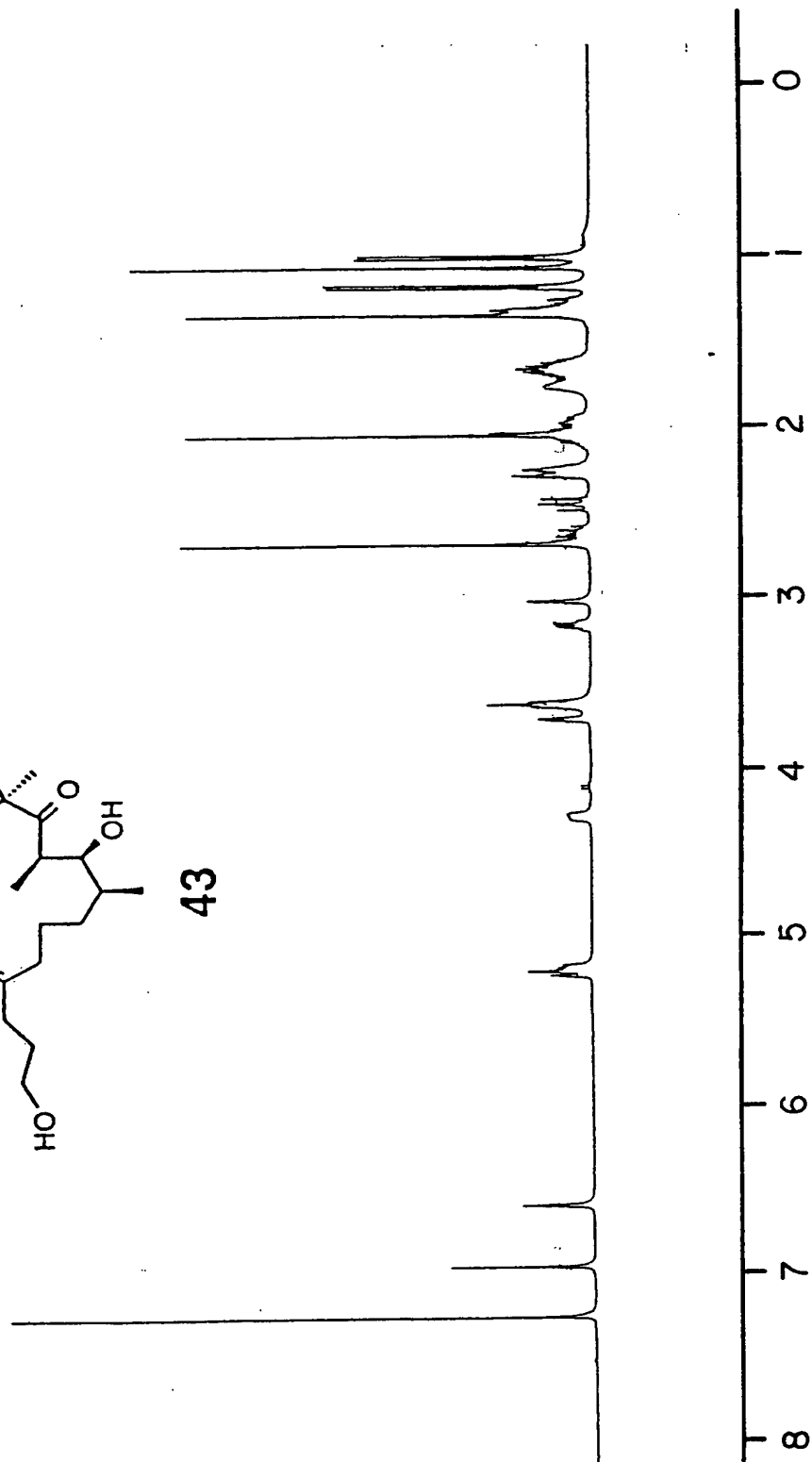
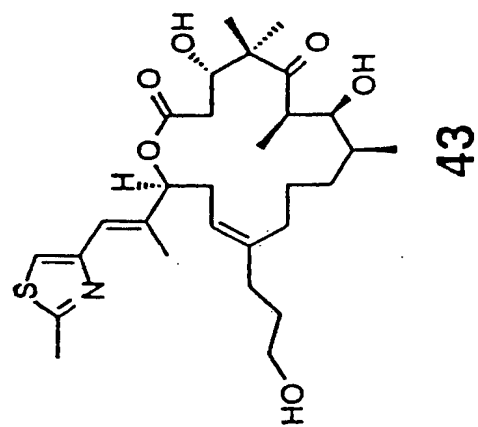
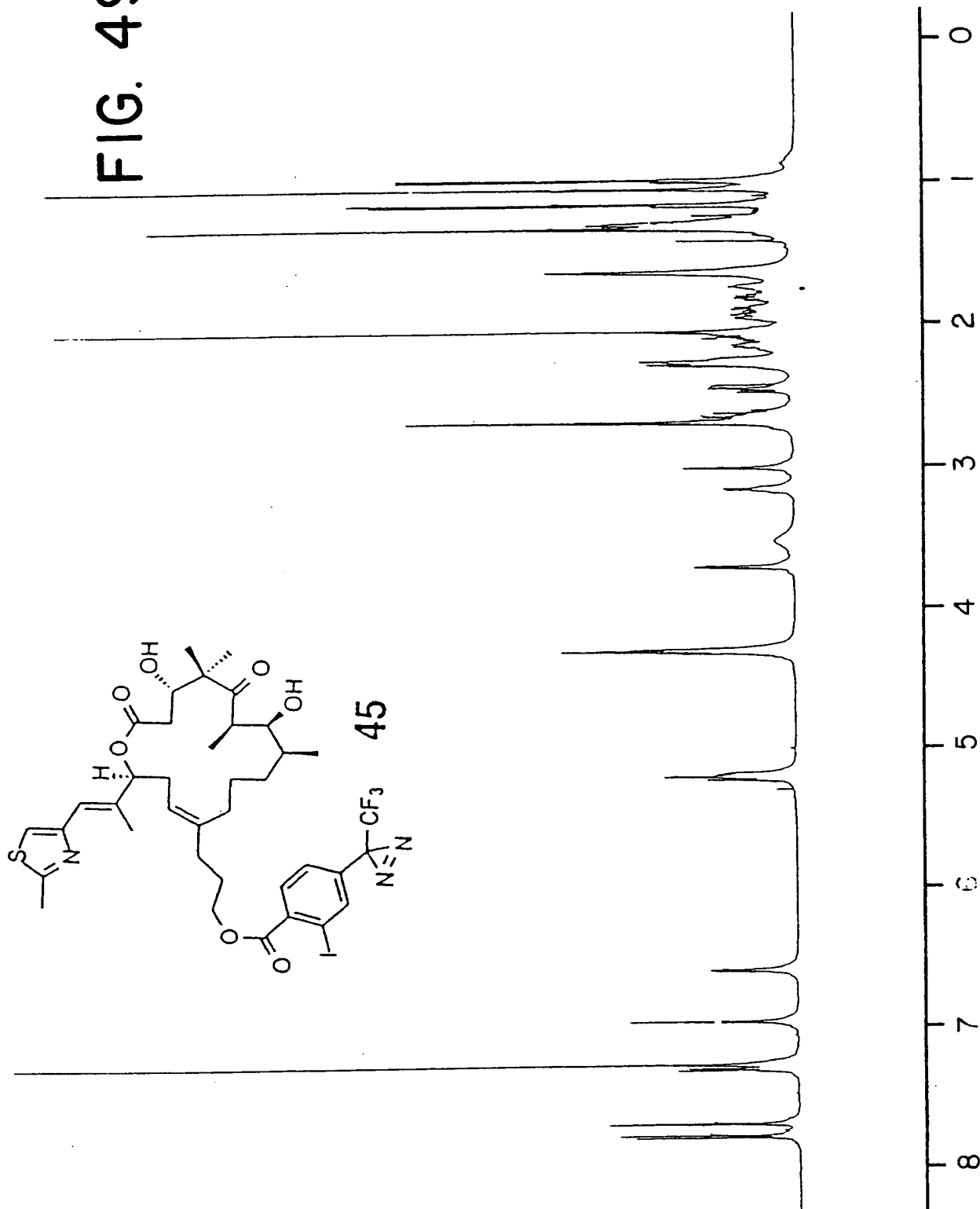




FIG. 49



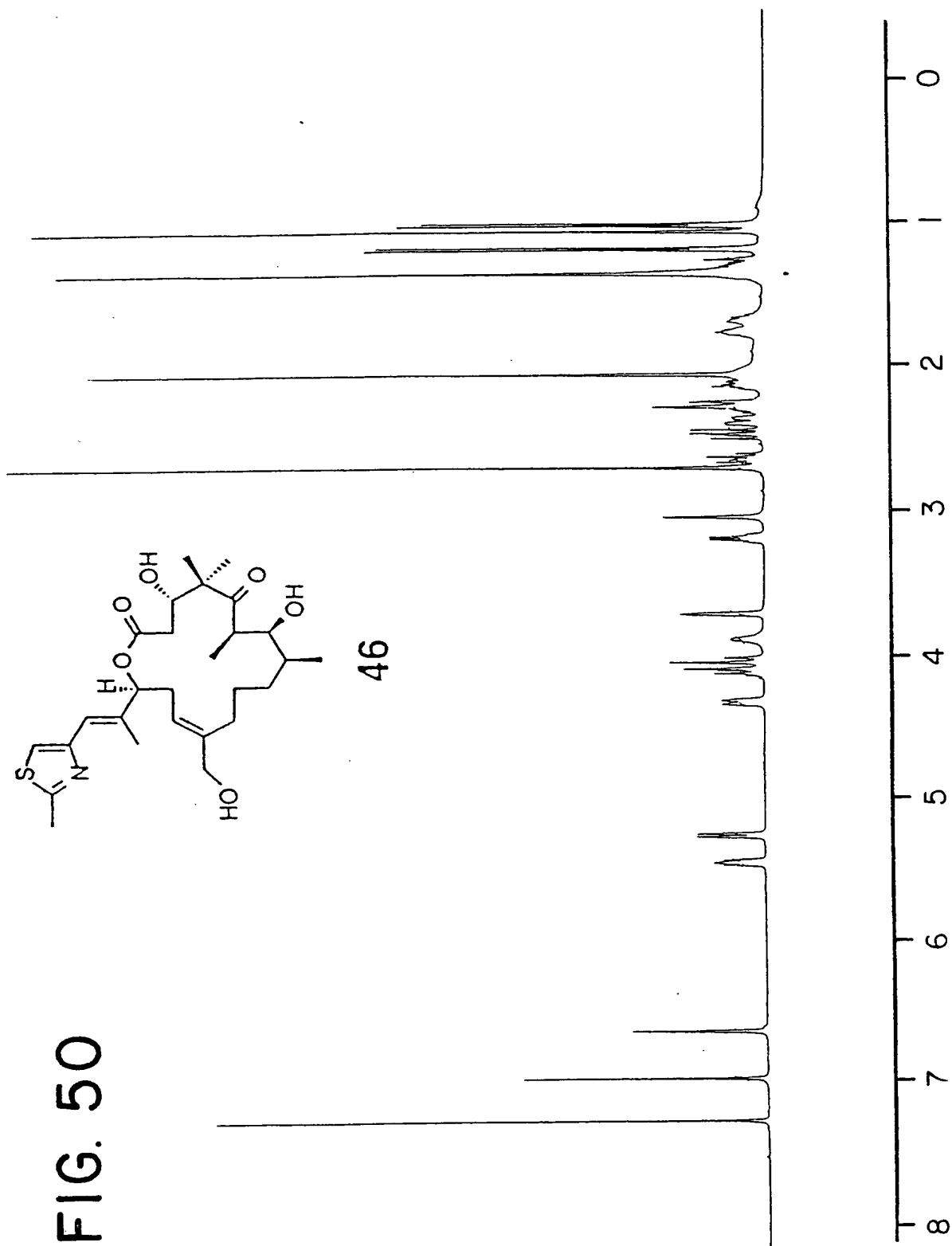


FIG. 51

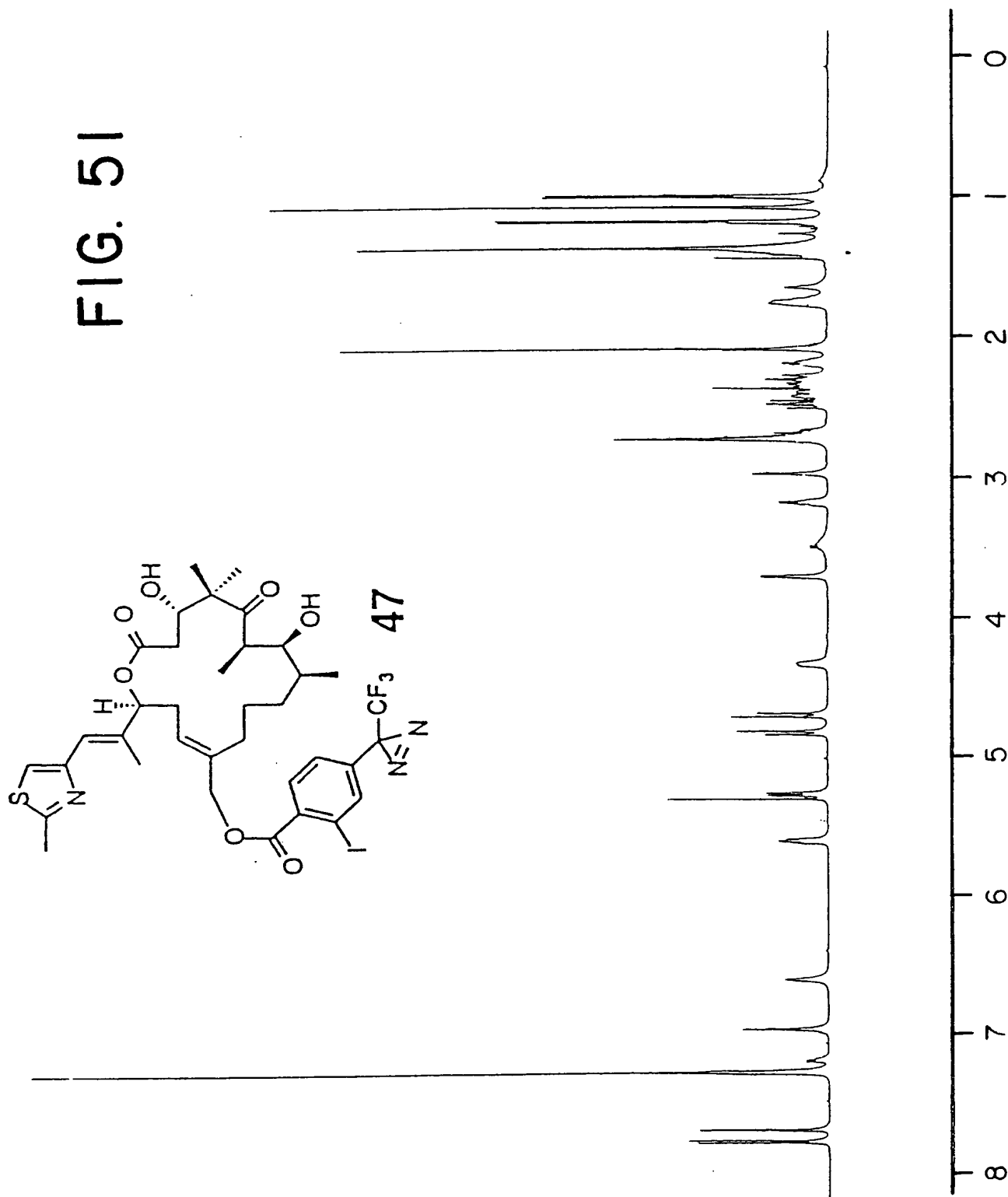


FIG. 52

